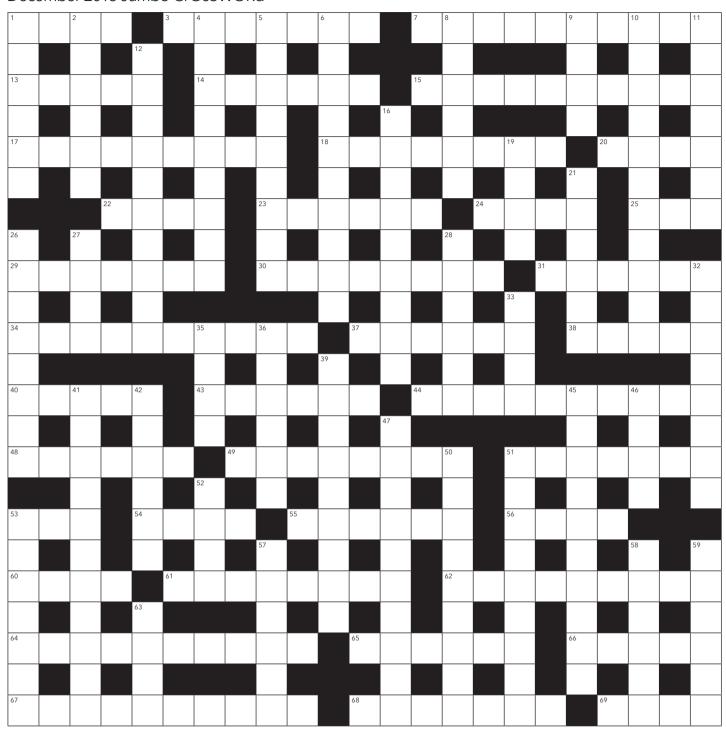
# December 2018 Jumbo CrOsSWORd



# **Entry form**

This month there are only two prize puzzles: the cryptic elements crossword and the quick regular crossword. For each crossword, a winner will be selected from all the correct entries received. Each winner will receive a hamper just in time for Christmas.

You can enter both of the prize draws, but each entrant is only eligible to win one puzzle prize.

Please enter your details and either post or email this page with your completed entries to us by **16 December 2018**. The winners of this month's crosswords will be published in the January 2019 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).

## Prize entry 1: Cryptic elements crossword

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(AI)TON.

#### Across

- 1 Dope saps energy from inspirational lady (6)
- 3 Killers in final approaches following donkey after donkey (9)
- 7 What Creole rascal converted the polymer pioneer? (7, 9)
- 13 Brew 2 down concoction without the brimstone! (6)
- 14, 66 Across Chef sulks about bran equipment in the lab (7, 6)
- 15 Reminted coin inched in compound (12)
- 17 Oddly said inner cities create untruths (13)
- 18 Hero opines about something above us (10)
- 20 Amphibians went south surprisingly (5)
- 22 Gosh, I changed the game (5)
- 23 Lacking initial training, toil over giant engraving (8)
- 24 Rebinding including decoration (5)
- 25 Strangely forbids odd trees (4)
- 29 American soldier leaves obligation for
- 30 Ed's notion about lunchtimes (9)

presentation (8)

- 31 First blend even pastry layer (8)
- 34 Chosen foetus developed this physiological capability (one of five) (5, 2, 5)
- 37 Right away, soccer pro orders drink (8)
- 38 German chemist rents first Nissan abroad (6)
- 40 Prone after fracturing initially unaffected spine? (6)
- 43 Specify tales I put about (9)
- 44 Medication in chamber pot I ordered (12, 1)
- 48 Birds fast and finally furious (6)
- 49 Oddly Titus twisting tresses to check strength (6, 4)
- 51 Some tin bits making a comeback in this mineral? (8)
- 53 Fool abandons Russian's remains (5)
- 54 Old salt mixes nutrients (contains no nuts) (5)
- 55 Puzzle over UK's first declaration of ultimatum (6)
- 56 See 27 down
- 60 A short time after the winner (6)
- 61 Tom and Colin carved chair evenly out of a large block of stone (10)
- 62 I rush around chap initially praising Greek polymath (10)
- 64 Orchestra pit plays first symphony it's way over my head! (13)
- 65 Novelist and physical chemist rearranges packs unevenly now (1, 1, 4)
- 66 See 14 across
- 67 She's boney it's disturbing the anabolisms! (12)
- 68 Supports corporal punishment or just a case of computer typography? (9)
- 69 Sue's right about addicts (5)

#### own

- Biochemist alters skin pH with oxygen (7)
- 2 Choices even for putrid oinks? (7)
- 4 Terminal for vehicles underwater or just electric? (10)
- 5 On arrangement uses conics following one after the other (10)
- 6 It's true love Finn mixing tonic (10)
- 8 Mountain climbers' tumbling tailspins? (9)
- 9 Order a cooker by the sound of it (7)
- 10 See 42 Down
- 11 Yes, resins transformed by expulsion (9)
- 12 Deputy refunds her if upset (12)
- 16 Tendency to slope off? (11)
- 19 He's cross about oddly needed compounds (7)
- 21 New bitcoin Charlie left for vitamin (6)
- 26 Majority agreement on sun's disturbance of 46 down (9)
- 27, 56 Across French Renaissance man redesigns Basil's palace (6, 6)
- 28 Cop takes road around second apple
- 32 | leave Yetis bitter about minerals (10)
- 33 Odd duck turns to extinct bird (4)
- 35 Removes part of Proust sacre bleu! (5)
- 36 Occupants of such places are reportedly intense (9)
- 39 Theoretical physicist (and atomic spy) sulk about such a fuss initially (5, 5)
- 41 Alter oars' positions it's a measure of the strain! (8, 5)
- 42, 10 Down Florist went on about woodman hit with mechanical rule (7, 5, 3, 2, 6)
- **45** Biochemist prepares a raw French fig
- 46 Some eye cells primarily consist of nothing extraordinarily special (5)
- 47 Mixed-up, copies escort seeing double (12)
- 50 Some sensitivity about the cousins (10)
- 51 Prepared worse supper for strong nations (11)
- 52 Strict about rents (5)
- 53 Potato disease burst cases terribly (6, 4)
- 57 Medical facilities initially can't let in new inpatients, causing stress (7)
- 58 Chris right off odd tests about rocks (7)
- 59 Not even Sasha sits around but helps (7)
- **63** Assertive boy accepts some swearing initially (5)

# Prize entry 2: Quick crossword

This one is your regular type of crossword, no element symbols are needed.

#### Across

- 1 Bee noise (4)
- 3, 65 Across Children's author and mycologist (7, 6)
- 7, 51 Across Laboratory weighing equipment (10, 7)
- 13, 31 Across, 66 Across French scientist awarded the 1935 chemistry Nobel prize in chemistry (5, 6-5)
- 14 Obsess (6)
- 15 Found everywhere (10)
- 17 Peruvian mountain named after an Inca emperor (9)
- 18, 49 Across English chemist and x-ray crystallographer who contributed to the elucidation of DNA's structure (8.8)
- 20 Scandinavian (4)
- 22 Lazy (4)
- 23 Type of kumquat (6)
- **24, 40 Across, 56 Across** American biochemist and first US professor of pharmacology (4, 5, 4)
- 25 Tower in London (3)
- 29 African antelopes (7)
- 30 Containing element 44 (8)
- 31 See 13 Across
- 34 Instrument for studying the sun (10)
- 37, 11 Down Soviet biologist and agronomist (1898-1976) (6, 7)
- 38 Public space for entertainment (5)
- 40 See 24 Across
- 43 Discrimination based on years (6)
- 44 Type of sound used in imaging and cleaning (10)
- 48 Part of the eye (6)
- 49 See 18 Across
- 51 See 7 Across
- 53 Basis of binary (3)
- 54 Chelating agent (abbreviation) (4)
- 55 Type of fermion (6)
- 56 See 24 Across
- 60 Vegetable symbolic of Wales (4)
- 61 Photocopying (8)
- 62 Type of spectroscopy named after its German discoverer for which he was awarded the 1961 physics Nobel prize (9)
- 64 Optical isomer (10)
- 65 See 3 Across
- 66 See 13 Across
- 67 Magnesium sulfate named after a natural spring in Surrey, England (5, 5)
- 68 Three-dimensional round objects (7)
- 69 Serpents (4)

#### Down

- 1 Plant disease (6)
- 2 Dutch physicist after whom a spectral effect is named (6)
- 4 People who make sure the law is adhered to (9)
- 5 Biological classifier (9)
- 6 Translates (10)
- 8 See 35 Down
- 9 Small part of a branch (4)
- 10 Form of asbestos (11)
- 11 See 37 Across
- 12 Small indiscretion (10)
- 16 Lack of correspondence in form on opposite sides of a plane for example (9)
- 19 Noble gas (4)
- 21 African country (6)
- 26 Crepuscular bird, with a hint of its nocturnal habits in its name (8)
- 27 Mineraloid, hydrated amorphous form of silica (4)
- 28 Tower in Paris (6)
- 32 Iron Lady (8)
- 33 Arab of high office (4)
- 35, 8 Down Supernova remnant in the constellation of Taurus (4. 6)
- 36 Verse (6
- 39 Antibiotic used for the treatment of tuberculosis (9)
- 41 Streams of electrons observed in
- vacuum tubes (7, 4)
- 42 See 57 Down45 Dominant adult male gorilla (10)
- 4.7
- **46** Zero (4)
- **47** CH<sub>3</sub> for example (5, 5)
- 50 Ten Ångstrom units (9)51 Small restaurant (9)
- 52 Infection of the eyelid (4)
- 53 Aromatic compound  $C_7H_8$  (7) 57, 42 Down German chemist after
- whom a laboratory burner was named (6, 6) 58 Fundamental particles named from a passage in *Finnegan's Wake* by
- James Joyce (6)
- 59 Undergarments (6)63 Smallest component of an element (4)

# November 2018 solutions and winners

Solutions to last month's puzzles and November's winners can be found on page 61.

# Editor's choice New compact HPR-20 gas analysers

Hiden Analytical introduces the new HPR-20 range of applicationspecific compact benchtop gas analysers for dynamic measurement of in-process gas composition.

All systems feature precision quadrupole mass spectrometers with standard mass range options 200amu and 300amu, with mass range options 20-1000amu being available for specialised applications.

The HPR-20 EGA system is configured for fast-response evolved gas measurement at near-atmospheric pressures utilising bypass capillary sampling, with sample consumption rates typically 1-15ml/min.

Systems are routinely used in conjunction with thermal gravimetric analysers (TGAs), with standard interface options



available for operation with a wide range of TGA systems.

The HPR-20 TMS Transient system offers the optimum response time for fast event studies. The system uses a direct pulse ion counting detector with a 7-decade dynamic range, from 1 to 10<sup>7</sup> counts per second, and with the multichannel scalar option provides a time resolution of just 50ns. The TMS system uses the 3F-series quadrupole with triple-stage mass filter providing optimum abundance sensitivity for mass resolution of minor species.

The HPR-20 R&D system is optimised for the researcher, with a wide selection of standard and customised system interface configurations available including options for direct sampling from sample pressures up to 30bar. An 8-channel multistream selector option enables sample auto-selection from multiple gas streams, and a 4 or 8-channel mass flow-controlled gas preparation module provides on-line precision gas mixtures for system calibration and for direct supply to the user's reaction process.

www.HidenAnalytical.com info@hiden.co.uk

# Featured product Liquid Nitrogen Generator

Asynt has installed a Liquid Nitrogen generator at the Scottish Association for Marine Science (SAMS) to help the organisation improve long term cryostorage of their precious samples in an environmentally friendly manner. Installing the system has enabled the SAMS Institute to efficiently generate and store liquid nitrogen on demand, 24 hours a day. The control system built in to the generator gives operators all the information necessary to ensure an efficient and consistent supply of liquid nitrogen and nitrogen gas is always available. Designed to ensure high operational safety,

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and operating off a single-phase electrical supply, the Asynt Liquid Nitrogen Generator operates automatically and provides information on nitrogen flow, trend graphs, service alarms and records.

www.asynt.com/product/liquidnitrogen-generators/

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# November 2018 solutions and winners

## Cryptic (prize entry)

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Ν	Α	R	С	1	S	S	1		1	Ν	U	L	1	Ν
	Ζ		С				Т		Ν		Ν		Т	
Κ	0	С	Н		L	0	R	Ε	Ν	Z	0	К	Ε	N
	N		Α		Ε		I		1				0	
			R	Α	С	Н	М	Α	Ν	1	N	0	F	F
	Т		1		Н		Ε		G		I		F	
С	R	Α	N	1	Α	L	N	Ε	R	V	Ε			
	I				Т		D		0		L		K	
В	Ε	Ε	Т	L	Ε	w	Ε	Ε	D		S	Н	Ε	D
	Ν		0		L		L				В		Т	
Α	Ν	D	R	Ε	1		Ε	К	Α	В	0	R	0	N
	1		С		Ε		Ε		S		Н		Ν	
S	Α	К	Н	Α	R	0	V		S	Ε	R	G	Ε	1

## Quick (just for fun)



## Wordoku

The name of the toxic gas was PHOSPHINE

## Word grid

The ninesymbol word was IONISATION

### November winners

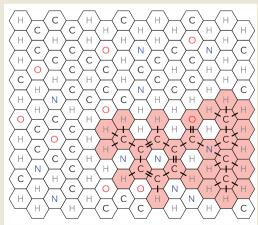
Molecule search Nicola Ede, Cambridge, UK

Wordoku William Black, London, UK

Word grid Isela Ruiz Gonzalez, Mexico City, Mexico

Crossword Teresa Sinclair. Baldersdale, UK

## Molecule search



The molecule is the insect repellent N,N-diethyl-3methylbenzamide, also known as Deet.