

### April 2017 chemistry wordoku

	S	O								A
				I	S					A
R		C	Y							I
I	C			Y		V				L
S			R		I					O
		A		L				C	I	R
					C	R				S
C			L	O						V
						C	V			Y

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 antiviral drug

### April 2017 word grid

Mo	N	Th
Am	S	C
I	Er	Dy

**Prize entry:** Using each element symbol in the grid only once, combine them together to make a single word of 14 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 only win one of the individual puzzle prizes each month.

If you submit correct entries for all four prize puzzles you will also be entered into a draw to win this month's grand prize\* provided by RSSL:

**An exciting 3D 'fly through' video of a sample selected by the winner.**

**Sample must be non-hazardous, non-liquid and non-metal.** Please enter your details below and either post or email this page with your completed entries to us by **20 April 2017**.

Chemistry World puzzles, Royal Society of Chemistry, Science Park, Milton Road, Cambridge, CB4 0WF, UK  
 email [chemistryworld@rsc.org](mailto:chemistryworld@rsc.org)

Name .....

Email .....

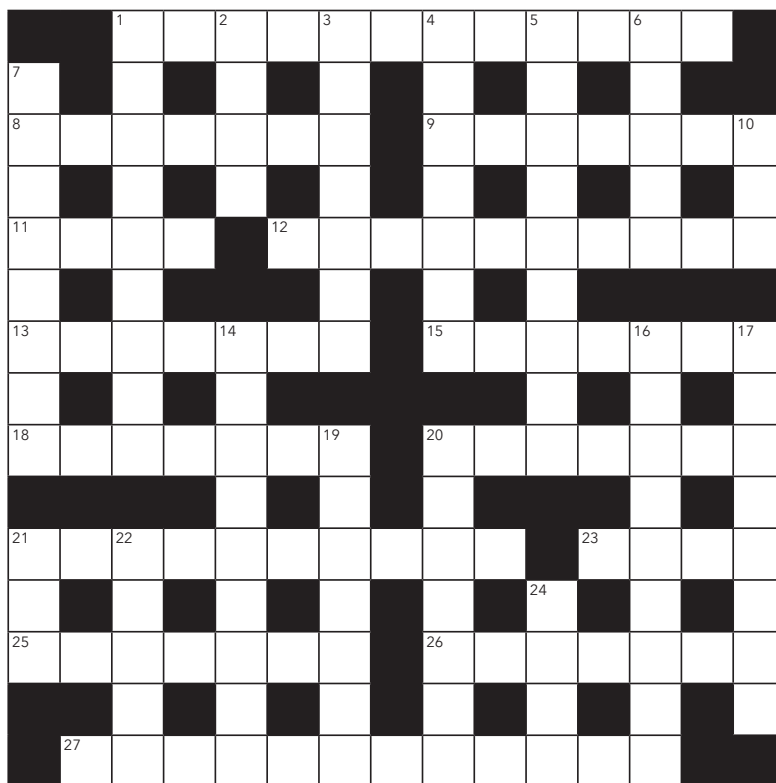
Tel .....

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)). In order to claim the grand prize, the winner's personal information will be provided to RSSL.

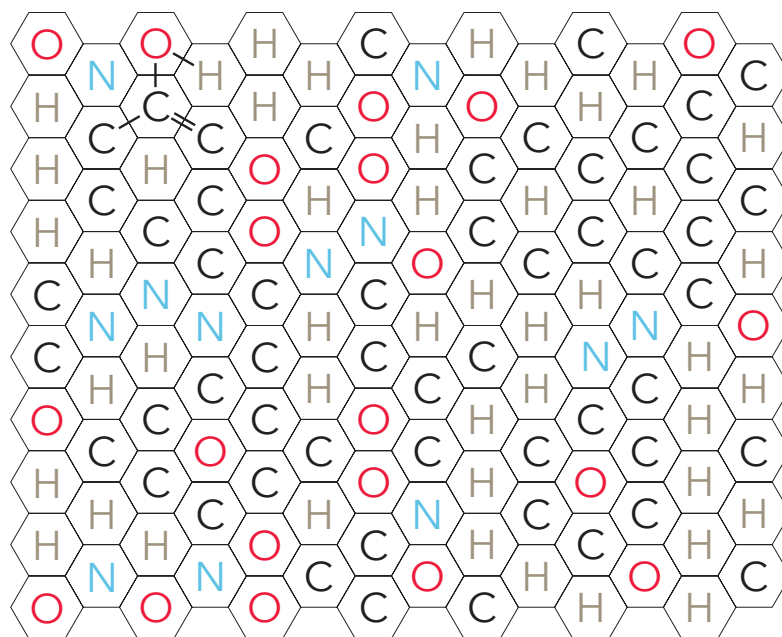
\* Limit of one entry per person before the closing date specified. The winner will be randomly selected and will be contacted directly by RSSL. There is no cash alternative to the winning prize.

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

### April 2017 crossword



### April 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 the hydroxyl group drawn in as a starting point.

Find these two molecules - we've already started one of them for you.  
 $C_{12}H_9N_3O_4$                        $C_{16}H_{12}N_2O$

Clues: Both molecules contain azo linkages; one features a nitro group.

**Cryptic (prize entry)**

- Across**
- Snub runner about extremely bespoke equipment (6, 6)
  - Air around camp from beechwood? (7)
  - 24 down I'll dance around Ella endlessly with this old battery (7, 4)
  - Right cross about copper core? (4)
  - Soothe girl about scientist who goes with the flow (10)
  - Hunted for the old? (7)
  - Cocktail craze around outskirts of Athens (7)
  - Element with approximate symbol? (7)
  - Doctor rattles satellite (7)
  - Sad suitors turn terrible (10)
  - See 7 down (4)
  - City revealed by actor on tour? (7)
  - Brain that is strangely Mediterranean! (7)
  - O mama! Aluminum turned without a salt! (8, 4)

**Quick (just for fun)**

- Across**
- See 1 down (12)
  - Measure of disorder (7)
  - Propan-2-one (7)
  - Direction (4)
  - Type of fabric with a glossy surface and dull back (5, 5)
  - Copy (7)
  - Soybean preparation (7)
  - Extinct proboscidean (7)
  - Clubs (7)
  - Attacked with incendiaries (10)
  - Cornish chemist (4)
  - Rejoice (7)
  - Nymphs (7)
  - Constructor of homes (5, 7)

**Down**

- Quebec upset oddly large physicist (9)
- Initially Nick's under my bed anaesthetised (4)
- Fear the demon? Grounded inside! (7)
- Chemist wrongly dosed with beryllium (7)
- Zoe luring confused bird (4, 5)
- Adele might hide resin (5)
- 7, 23 across If I accept, she alters capacity (8, 4)
- Illuminated till left out and turned around (3)
- Sad about losing gliding effect (9)
- Metal emu hurt in crash (9)
- Create no complex pigment (8)
- Italian inventor manic or confused (7)
- Left Tim playing U2, initially heavy metal? (7)
- Girl doesn't offer this initially (3)
- Muse turns right for plasma (5)
- See 9 across (4)

**Down**

- 1, 1 across  $\text{KMnO}_4$  (9, 12)
- Corvid (4)
- Enzyme in saliva (7)
- Igneous rock (7)
- Dutch polymath (9)
- 24 down English actress (1911-2003) (5, 4)
- Non-metallic element (8)
- Part of a needle (3)
- Nuclear weapons (4, 5)
- Great name! (9)
- Writer of short articles (4)
- Domestic router (4, 3)
- Madras (7)
- Not thin (3)
- Horned ungulate (5)
- See 6 down (4)

## Food Product Problems - Let Us Help

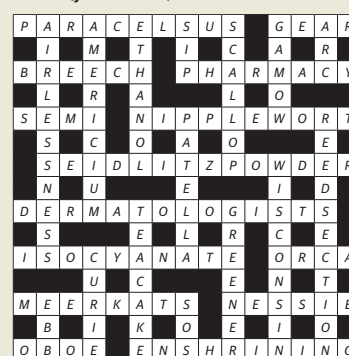
- Product authenticity
- Product stability
- Resolution of product and manufacturing failure
- Contaminant identification
- Ingredient issues
- Taint investigation

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)



## March 2017 solutions and winners

**Cryptic (prize entry)**

**Quick (just for fun)**

**Wordoku**

The name of the 18th century chemist was Joseph **PRIESTLEY**

**Word grid**

The nine-symbol word was **IRRATIONALITIES**

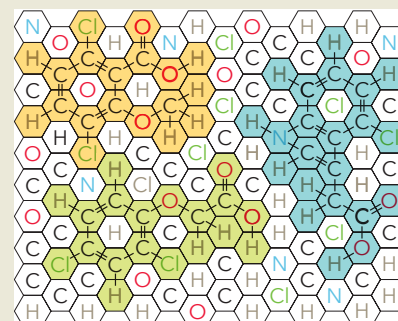
**January winners**

**Wordoku and overall winner:**  
John Charles, Leominster, UK

**Molecule search**  
Mykhaylo Alekseychuk,  
Berlin, Germany

**Word grid**  
Kimberley Whittaker, Newbury, UK

**Crossword**  
Paul Matejtschuk, Hitchin, UK

**Molecule search**


The three molecules are herbicides Dicamba and 2,4-dichlorophenoxyacetic acid (2,4-D), and the plant auxin 4-chloroindole-3-acetic acid

This is a difficult decision, balancing the need for urgent care against the potential that the pilot could become a casualty during flight - a phosphine concentration of just 4ppm in the aircraft would be sufficient to begin causing a disabling effect. Briefing the crew and flying with the aircraft's side doors open to increase ventilation may be sufficient control measures, but a ground ambulance may be safer. The hospital receiving the casualty may also need to take precautions, such as evacuating the A&E department to keep other patients safe.

**Answer to On the spot**

## On the spot: Phosphine incident

### AT A PLAYING FIELD..



A CHILD HAS EATEN AN ALUMINIUM PHOSPHIDE RODENTICIDE TABLET. THE TABLET IS REACTING WITH THEIR STOMACH ACID TO PRODUCE TOXIC PHOSPHINE GAS AND THEY NEED TO BE EVACUATED TO HOSPITAL IMMEDIATELY.

AN AIR AMBULANCE HAS ARRIVED, BUT YOU ARE WORRIED THE GAS WILL HARM THE HELICOPTER CREW WHILE THEY ARE IN FLIGHT.

YOU ARE THE INCIDENT COMMANDER.

WHAT WOULD YOU DO?