

Elemental pub quiz challenge

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We would like to invite you to participate in the Analytical Challenge, a series of puzzles to entertain and challenge our readers. This special feature of “Analytical and Bioanalytical Chemistry” (ABC) has established itself as a truly unique quiz series, with a new scientific puzzle published every three months. Readers can access the complete collection of published problems with their solutions on the ABC homepage at <http://www.springer.com/abc>. Test your knowledge and tease your wits in diverse areas of analytical and bioanalytical chemistry by viewing this collection.

The present challenge is dedicated to the periodic table, which celebrates its 150th anniversary this year. The United Nations proclaimed 2019 as the “International Year of the Periodic Table of Chemical Elements” and therefore, on this special occasion, there is more than one prize to be won (Springer book vouchers of your choice up to a value of €100). Please read on...

Meet the challenge

Many consider the periodic table of chemical elements to be among the most significant achievements in science, capturing the essence of chemistry. More importantly, the periodic table of chemical elements is a uniting scientific concept that promotes international cooperation in the basic sciences. This year marks the 150th anniversary of the year that is commonly used to mark the birth of the periodic law [1, 2], and the United Nations General Assembly proclaimed 2019 as the “International Year of the Periodic Table of Chemical Elements” to enhance global awareness of the basic sciences, with special attention given to the countries of the developing world [3]. As the world celebrates the periodic table, countless new stories are being told about this

icon of science [4–6], and this challenge is our tribute to celebrate the periodic table.

The challenge

The quiz below is inspired by the General Knowledge Paper of King William College (Isle of Man, UK), commonly known as the *world's most difficult quiz* [7]. All questions are arranged into five thematic categories, some of which themselves are cryptic, and all answers are the English names of chemical elements.

- 1 Which element is:
 - (a) New
 - (b) Fake
 - (c) Not alone
 - (d) Heavy
 - (e) Unstable
 - (f) Evil
 - (g) Strange
- 2 Which element was:
 - (a) Sweet
 - (b) An old man with a scythe
 - (c) Brine, fleetingly
 - (d) Purified by the grey wolf
 - (e) Discovered in the nose of the fairy hill
 - (f) One aluminium
 - (g) Two manganese
- 3 Which:
 - (a) Element relates to torment
 - (b) Element has its own sura
 - (c) Element lost a letter after World War II
 - (d) Goddess melts in hell
 - (e) Capital resists acids
 - (f) Capital won over a constellation
 - (g) Daughter won over the United States of America

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- 4 *Figure out:*
 - (a) 1
 - (b) 5
 - (c) 55
 - (d) 100
 - (e) 400
 - (f) 1100
 - (g) 1500
- 5 *Rearrange:*
 - (a) Iron fuel
 - (b) Titanium crop
 - (c) Red thorium fur
 - (d) Go as erbium
 - (e) My sodium pear
 - (f) I am cerium
 - (g) Francium oil

Can you identify these elements? Send us the 35 names for a chance to win €100, €75, or €50 prizes.

2. Wolley AT. *Analytical and Bioanalytical Chemistry*, and the International Year of the Periodic Table. *Anal Bioanal Chem.* 2019. <https://doi.org/10.1007/s00216-019-02079-4>.
3. United Nations 72nd General Assembly, 7 Dec 2017 [A/72/422/Add.2].
4. Van Tiggelen B, Lykknes A. Celebrate the women behind the periodic table. *Nature.* 2019;565:559–61.
5. Chapman K. *Superheavy: making and breaking the periodic table.* Bloomsbury; 2019.
6. Lee MS. *Elemental haiku: poems to honor the periodic table, three lines at a time.* Ten Speed Press; 2019.
7. The World's Most Difficult Quiz. *The New York Times*, 20 Jan 2012.

We invite our readers to participate in the Analytical Challenge by solving the puzzle above. Please send the correct solution to abc-challenge@springer.com by January 1, 2020. Make sure you enter "Elemental pub quiz challenge" in the subject line of your e-mail. The winner will be notified by e-mail, and his/her name will be published on the "Analytical and Bioanalytical Chemistry" (ABC) homepage at <http://www.springer.com/abc> and in the journal (volume 412/issue 9), where readers will find the solution and a short explanation.

The next Analytical Challenge will be published in volume 412/issue 1, January 2020. If you have enjoyed solving this Analytical Challenge, you are invited to try the previous puzzles on the ABC homepage.

References

1. Kemp M. Mendeleev's matrix. *Nature.* 1998;393:527.

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