# Lesson Element

# Halogens crossword

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  | 2 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 3 |  | 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | 5 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  | 7 |  |  |  | 8 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 9 |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 10 |  |  |  |  |  |  |  |  |  |  |  |  |  | 11 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 12 |  |  |  | 13 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | 14 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 15 |  |  |  |  |  | 16 | 17 |  | 18 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | 20 |  | 21 |  |  |  |  |  |  |
|  |  |  |  |  | 22 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

### Across

3. Halogens are strong \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ agents. (9)

5. The solubility of precipitates in a solution of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used as the second part of the standard test for halides. (7)

6. Iodine does not oxidise bromine or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (8)

7. The number of electrons in the outer shell of halogens. (5)

10. Halogens are the most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the non-metals. (8)

13. The halogen that is the strongest oxidising agent. (8)

15. The physical state of iodine at RTP. (5)

16. The relative oxidising strengths of the halogens can be seen in their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ reactions with the halide ions. (12)

19. The halogens all consist of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules, X2, containing a single covalent bond. (8)

20. The halogen that is liquid at RTP. (7)

22. The common name for the elements in Group 17. (8)

### Down

1. Because chlorine kills bacteria, small amounts of it are added to this before it enters your home. (8,5)

2. A solution of this is added to halides to identify them by the colour of the precipitate produced. (6,7)

4. Chlorine oxidises both bromine and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (6)

8. The outer shell of a halogen atom is just one electron short of the electronic configuration of one of these. (5,3)

9. The physical states of the halogens at RTP as you go down the group show the classic trend of
gas → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ → solid. (6)

11. The oxidising power of the halogens \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as you go down the group. (9)

12. The physical state of chlorine at RTP. (3)

14. The common name for a household cleaning product. It is made by mixing chlorine with sodium hydroxide. (6)

17. The boiling points of the halogens \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as you go down the group. (8)

18. The shell of a halogen atom that gains an electron when it is reduced. (1,3-5)

21. The number of electrons gained by a halogen atom when it is ionised. (3)