

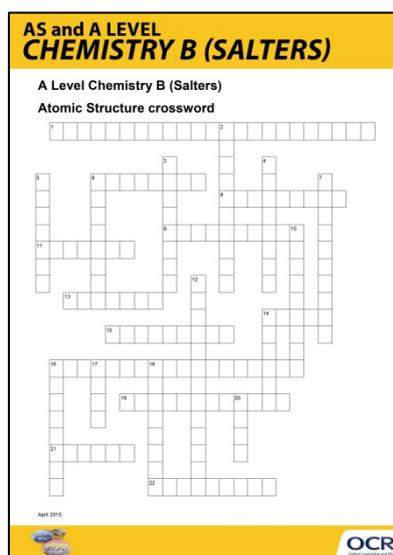
AS and A LEVEL CHEMISTRY B (SALTERS)

A Level Chemistry B (Salters)

Atomic Structure crossword

Instructions and answers for teachers

These instructions should accompany the OCR resource 'Atomic Structure Crossword' which supports OCR A Level Chemistry B.



The Activity:

At the beginning of AS Level, many learners seriously underestimate the rate at which they need to assimilate new terminology into their scientific vocabulary. This crossword is designed to practice or revise some of the key terms related to atomic structure and first ionisation enthalpy, as well as some key ideas associated with these topics. The crossword could be used as a consolidation exercise soon after the topics have been taught, or as a revision exercise.

Once completed, learners could be asked to make their own glossary or flashcards, choosing ten of the most important words.

Learning outcomes

This resource relates to the following specification learning outcomes:

EL(a), EL(e), EL(f), EL(q)

Associated materials:

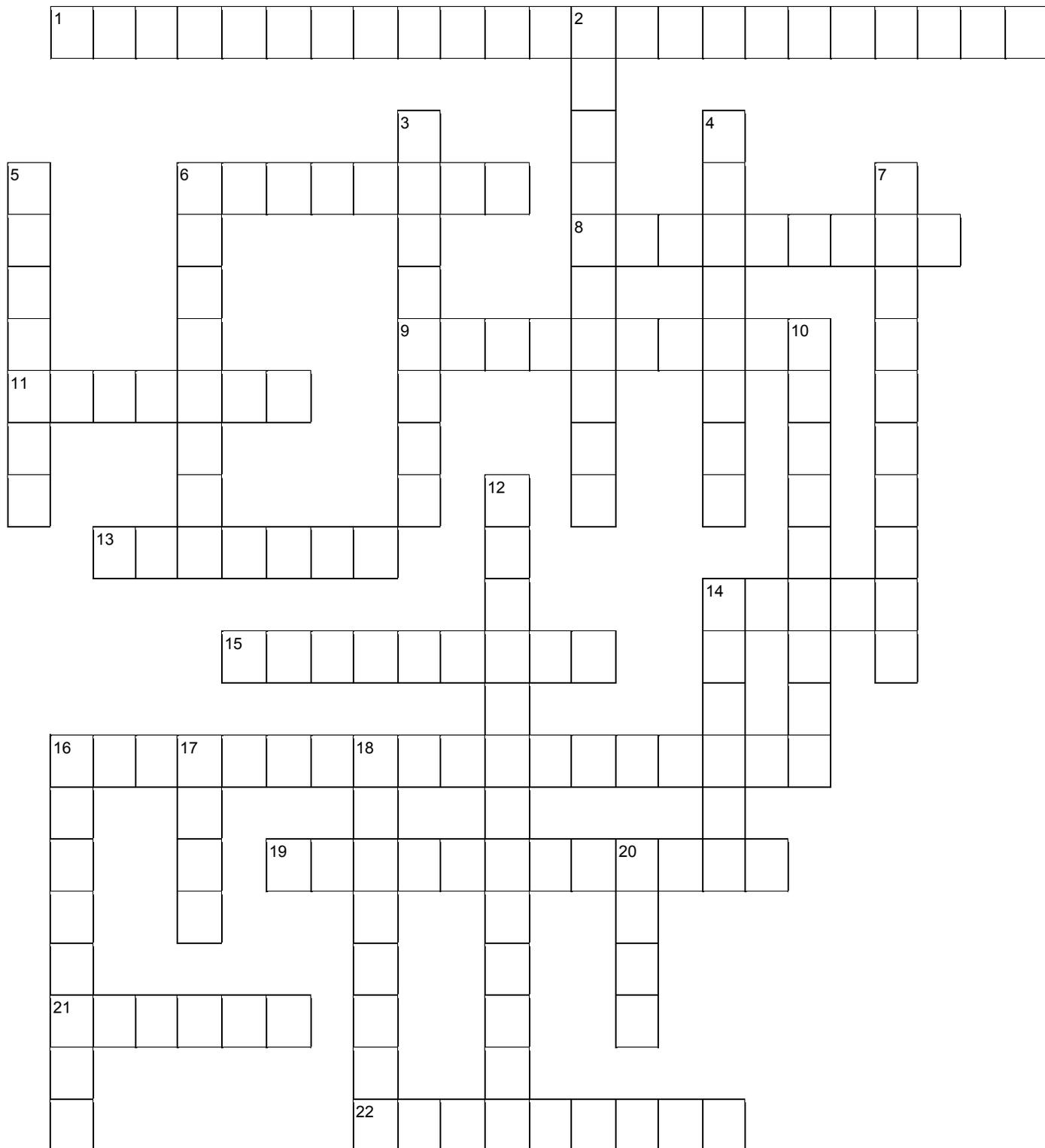
'Atomic Structure Crossword' Lesson Element learner activity sheet.

April 2015



AS and A LEVEL **CHEMISTRY B (SALTERS)**

Atomic Structure crossword



AS and A LEVEL CHEMISTRY B (SALTERS)

Across

1. This is defined as the amount of energy needed to remove one electron from each atom in one mole of gaseous atoms to form one mole of gaseous 1+ ions. (5,10,8)
6. Subatomic particles which occupy the nuclei of atoms. They have zero charge. (8)
8. "s" orbitals are this shape. (9)
9. How many electrons does each atom of this mystery element ${}_{35}^{80}\text{Z}$ have? (6,4)
11. Can be described as the "bit of space" an electron moves in. (7)
13. The energy levels of shells become this the further they are from the nucleus. (7)
14. Number of electrons in a half filled "p" shell. (5)
15. "p" orbitals are shaped like these. (9)
16. Protons, neutrons and electrons are collectively referred to as these. (9,9)
19. Symbol Z. This is determined by the number of protons in the nucleus of an atom. (6,6)
21. Electrons fill up sub-shells starting with those with the lowest levels of what? (6)
22. Describes the "protecting" of the outer shell electrons from the attractive forces of the nucleus by the inner electron shells. (9)

Down

2. Term applied to the removal of electrons from an atom or molecule. (10)
3. What charge does an ion have if it has fewer electrons than protons? (8)
4. It is the number and the arrangement of the electrons in their atoms which determine these particular properties of an element. (8)
5. Subatomic particles which occupy the nucleus of atoms. They have a unit of positive charge. (7)
6. What charge does an ion have if it has fewer protons than electrons? (8)
7. Sometimes given the symbol A. This is determined by the total number of protons and neutrons in the nucleus of an atom. (4,6)
10. Subatomic particles which occupy the region of an atom outside the nucleus and carry a unit of negative charge. (9)
12. The three main things that affect the size of ionisation energies are atomic radius, shielding and this. (7,6)
14. How many neutrons does each atom of this mystery element ${}_{12}^{24}\text{X}$ have? (6)
16. Orbitals with the same energy are found within the same what? (3-5)
17. The smallest particle of an element which can exist. (4)
18. These are atoms of the same element with the same number of protons in the nucleus but with a different number of neutrons. (8)
20. Isotopes tend to have slightly different properties because of the what of the atom? (4)



AS and A LEVEL CHEMISTRY B (SALTERS)

Answers

Across

1. First ionisation enthalpy
6. Neutrons
8. Spherical
9. Thirty five
11. Orbital
13. Greater
14. Three
15. Dumbbells
16. Subatomic particles
19. Atomic number
21. Energy
22. Shielding

Down

2. Ionisation
3. Positive
4. Chemical
5. Protons
6. Negative
7. Mass number
10. Electrons
12. Nuclear charge
14. Twelve
16. Sub-shell
17. Atom
18. Isotopes
20. Mass



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