

CLASS 10

SCIENCE

NCERT SOLUTIONS

NCERT Solutions for Class 10 Science: Periodic Classification of Elements (Supplementary — Not in Current CBSE Syllabus) – Free PDF Download

Periodic Classification of Elements covers how elements are arranged in the Modern Periodic Table based on electronic configuration, and compares this to Mendeleev's earlier attempt. Note: this chapter was removed from the current Class 10 NCERT textbook entirely in the 2023-24 CBSE/NCERT rationalisation and shifted...

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Periodic Classification of Elements covers how elements are arranged in the Modern Periodic Table based on electronic configuration, and compares this to Mendeleev's earlier attempt. **Note:** this chapter was removed from the current Class 10 NCERT textbook entirely in the 2023-24 CBSE/NCERT rationalisation and shifted into the Class 11 syllabus — it is not one of the 13 numbered chapters in the current Class 10 Science book, and is kept here as supplementary reading for students on other boards, or those who want the background before the current Chapter 1 (Chemical Reactions and Equations). Below are complete, original answers to all 10 end-of-chapter exercise questions. These solutions are also useful as background reading or for other-board revision.

NCERT Solutions for Class 10 Science: Periodic Classification of Elements

Q1. Which of the following statements is not a correct statement about the trends when going from left to right across the periods of Mendeleev's periodic table? (a) The elements become less metallic in nature (b) The number of valence electrons increases (c) The atoms lose their electrons more easily (d) The oxides become more acidic

(c) is the incorrect statement. Moving left to right across a period, nuclear charge increases while the number of shells stays the same, so the nucleus holds its electrons more tightly — making it harder, not easier, to lose electrons. Metallic character decreases, valence electrons increase, and oxides become more acidic across a period, so (a), (b) and (d) are all correct trends.

Q2. Element X forms a chloride with the formula XCl_2 , which is a solid with a high melting point. X would most likely be in the same group of the periodic table as (a) Na (b) Mg (c) Al (d) Si

(b) Mg. The formula XCl_2 shows X has a valency of 2, which matches magnesium (group 2). A high-melting solid chloride is also typical of an ionic compound formed by a metal like magnesium, unlike NaCl (valency 1) or a compound of Al (valency 3) or Si (a non-metal/metalloid, mostly covalent chlorides).

Q3. Nitrogen (atomic number 7) and phosphorus (atomic number 15) belong to group 15 of the periodic table. Write the electronic configuration of these two elements. Which of these will be more electronegative and why?

Nitrogen: 2, 5. Phosphorus: 2, 8, 5. Nitrogen is more electronegative — its valence shell (2nd shell) is much closer to the nucleus than phosphorus's (3rd shell), so the nucleus attracts bonding electrons more strongly. Electronegativity decreases down a group as atomic size increases.

Q4. How does the electronic configuration of an atom relate to its position in the Modern Periodic Table?

The number of valence electrons (electrons in the outermost shell) determines the group, and the number of occupied electron shells determines the period. For example, magnesium (2, 8, 2) has 2 valence electrons and 3 shells, so it sits in group 2, period 3.

Q5. In the Modern Periodic Table, calcium (atomic number 20) is surrounded by elements with atomic numbers 12, 19, 21 and 38. Which of these four elements have physical and chemical properties resembling calcium?

Magnesium (atomic number 12, configuration 2,8,2) and strontium (atomic number 38, configuration 2,8,18,8,2) — both are in the same group (group 2) as calcium, with the same number of valence electrons (2), so they show similar chemical behaviour. Elements 19 and 21 sit in the same period as calcium, not the same group, so their properties differ.

Why This Chapter Matters

Even though it is no longer part of the CBSE board-exam syllabus, Periodic Classification of Elements

builds the foundation for understanding periodic trends (metallic character, electronegativity, atomic size) used throughout higher secondary and college-level chemistry, and some state boards still examine it directly.

CBSE Exam Weightage

This specific chapter carries **zero marks** in the current CBSE Class 10 board exam — it was removed from the examinable syllabus (and from the printed Class 10 book) in the 2023-24 rationalisation. Unit I: Chemical Substances – Nature and Behaviour still carries around 25 marks (31.25%) of the 80-mark theory paper, but that weightage now comes entirely from Chapters 1–4 (Chemical Reactions and Equations, Acids/Bases/Salts, Metals and Non-metals, Carbon and its Compounds).

Periodic Classification of Elements – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the [Periodic Classification of Elements Extra Questions](#) and [Periodic Classification of Elements Revision Notes](#) for quick revision and extra practice.