

8.4 Transition elements

Name: _____ Class: _____ Date: _____

Total: 8 marks

Objective

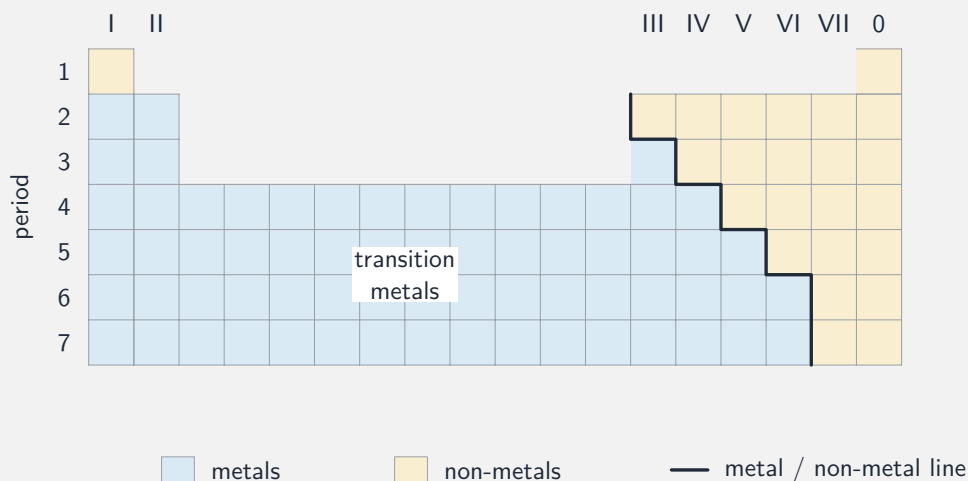
Build the skills to answer exam questions on the **transition elements** 过渡元素—their properties compared with Group I metals.

You must be able to:

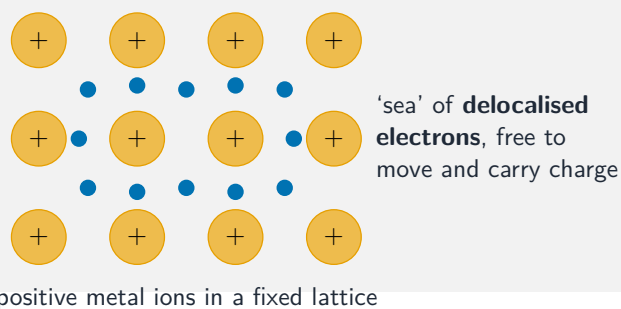
- state the properties of transition elements
- contrast them with Group I metals
- recognise variable oxidation states and coloured compounds

1 Worked examples

■ Transition metal properties



The transition elements are the block of metals in the middle of the table



- high density and high melting point.
- form **coloured** compounds; often act as catalysts.
- have **variable oxidation numbers** (e.g. iron(II) and iron(III)).

2 Practice

2.1 State one property of transition metals not shared by Group I metals. [1]

2.2 Give the two common oxidation states of iron. [2]

3 Exam-style questions

3.1 Which is a property of transition elements? [1]

- **A** very low density
- **B** they form coloured compounds
- **C** only one oxidation state
- **D** very low melting points

3.2 Compare a transition metal with a Group I metal.

(a) Give two differences in physical properties. [2]

(b) State one use of transition elements (or their compounds) linked to their special property. [1]

3.3 Iron forms both iron(II) and iron(III) compounds. State what this shows about transition elements. [1]

4 Go further

You are now ready for the real exam questions on this subtopic. Open the **8.4 Transition elements** past-paper sheet in the Library, or try these in **Practice mode**:

- 0620/23 N25 —Q26 (transition elements)
- 0620/21 J25 —Q23 (transition metals)

Solutions

2.1 any of: high density; high melting point; coloured compounds; variable oxidation states; catalytic activity.

2.2 iron(II) and iron(III).

3.1 B. Transition elements form coloured compounds.

3.2 (a) transition metals have higher density and higher melting points than Group I metals.

(b) used as catalysts (e.g. iron in the Haber process).

3.3 they have variable oxidation numbers (states).