

8.5 Noble gases

Name: _____ Class: _____ Date: _____

Total: 6 marks

KEY WORDS noble gases 稀有气体 • monatomic 单原子 • unreactive 不活泼 • periodic table 周期表
• electrons 电子

Objective

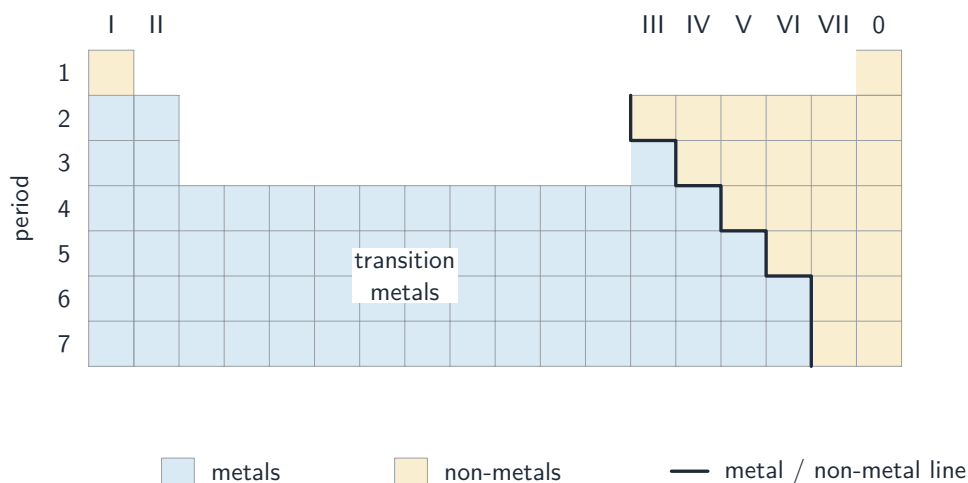
Build the skills to answer exam questions on **Group VIII — the noble gases** 稀有气体 — why they are unreactive.

You must be able to:

- describe the noble gases (monatomic, unreactive)
- explain their lack of reactivity using electron shells

1 Worked examples

■ Why noble gases are unreactive



The noble gases are in Group VIII (0) on the far right

- they are **monatomic** (single atoms) and **unreactive**.
- they have a **full outer shell**, so they don't need to gain, lose or share electrons.

2 Practice

2.1 State why the noble gases are described as monatomic. [1]

2.2 State the position of the noble gases in the Periodic Table. [1]

3 Exam-style questions

3.1 The noble gases are unreactive because they have: [1]

- **A** one outer electron
 - **B** seven outer electrons
 - **C** a full outer shell of electrons
 - **D** no electrons
-

3.2 Argon is a noble gas.

(a) Explain, using electrons, why argon does not form compounds easily. [2]

(b) State whether argon exists as single atoms or as molecules. [1]

Solutions

2.1 they exist as single atoms (not joined into molecules).

2.2 Group VIII (0), on the far right.

3.1 C. A full outer shell makes them unreactive.

3.2 (a) argon has a full outer shell of electrons; so it does not need to gain, lose or share electrons, making it stable/unreactive.

(b) single atoms.