

## 8.5 Noble gases

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

**Total: 6 marks**

**KEY WORDS** monatomic 单原子 • unreactive 不活泼 • noble gases 稀有气体 • ions 离子  
• periodic table 周期表

### Objective

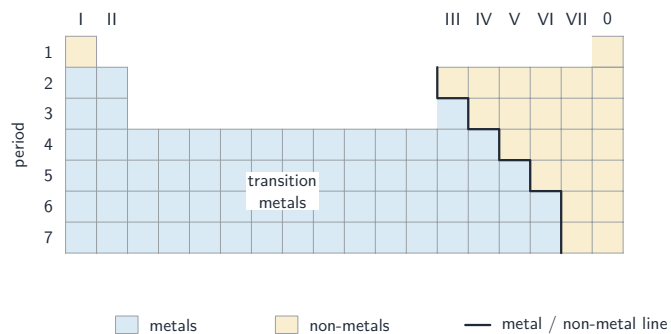
Build the skills to answer exam questions on **Group VIII — the noble gases** 稀有气体 — why they are unreactive.

**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]

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

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## 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

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**3.2** Argon is a noble gas.

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

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\_\_\_\_\_

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

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## Solutions

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**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.