🔥 Physical vs chemical properties

物理性质与化学性质

Date · 日期 _____ Topic · 知识点 1/3

CUES · QUESTIONS

提示 · 问题

1. What is matter?
   > 什么是物质?
2. Physical property — definition?
   > 物理性质的定义?
3. Chemical property — definition?
   > 化学性质的定义?
4. "Mercury is a liquid at room temperature" — P or C?
   > 「汞在室温下是液体」——物理还是化学?

Cover the notes. Answer each cue from memory. · 盖住右边的笔记，凭记忆回答每个提示。

NOTES

笔记

1 · Worked example · 1 · 看一道例题 Copy one example from the page. Next to each line write WHY in a few words. · 抄一道例题，每一行旁边用几个字写「为什么」。

2 · Fill in the blanks · 2 · 填空题 Cover the steps and redo it. Leave a gap where you are unsure. · 盖住步骤自己重做，不确定的地方先空着。

3 · Your turn · 3 · 自己做 A new question. Then check it against the answer. · 做一道新题，然后对答案。

SUMMARY — IN MY OWN WORDS, TWO SENTENCES

小结——用自己的话，两句

🔥 Extensive vs intensive properties

广延性质与强度性质

Date · 日期 _____ Topic · 知识点 2/3

CUES · QUESTIONS

提示 · 问题

1. Extensive property?
   > 广延性质?
2. Intensive property?
   > 强度性质?
3. Fastest test?
   > 最快的判断方法?
4. Temperature — E or I?
   > 温度——广延还是强度?

Cover the notes. Answer each cue from memory. · 盖住右边的笔记，凭记忆回答每个提示。

NOTES

笔记

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SUMMARY — IN MY OWN WORDS, TWO SENTENCES

小结——用自己的话，两句

🔥 Physical vs chemical change

物理变化与化学变化

Date · 日期 _____ Topic · 知识点 3/3

CUES · QUESTIONS
提示 · 问题

1. Chemical change?
   > 化学变化?
2. Physical change?
   > 物理变化?
3. Are phase changes physical or chemical?
   > 相变是物理变化还是化学变化?
4. Clues of a chemical change?
   > 化学变化的线索?

Cover the notes. Answer each cue from memory. · 盖住右边的笔记，凭记忆回答每个提示。

NOTES
笔记

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SUMMARY — IN MY OWN WORDS, TWO SENTENCES
小结——用自己的话，两句

🔥 Properties & Changes

性质与变化

• Formula and trap sheet

公式与陷阱一页纸

Everything you need before a test, on the fewest pages. Fold it and keep it in your binder. · 考前要看的东西，压缩在尽量少的页数里。折起来放进文件夹。

Physical vs chemical properties · 物理性质与化学性质

REMEMBER · 记住

- Physical property: observe or measure, substance unchanged (colour, density, mp, bp, hardness).
  > 物理性质：观察或测量，物质不变（颜色、密度、熔点、沸点、硬度）。
- Chemical property: how it reacts to form a new substance (rusts, burns, reacts with acid, tarnishes).
  > 化学性质：能怎样反应生成新物质（生锈、燃烧、与酸反应、变暗）。

WATCH OUT · 当心

- "Gasoline is flammable" → physical (nothing is burning) ✕ → chemical (ability to burn) ✓
  > 「汽油易燃」→ 物理（又没在烧）✕ → 化学（能燃烧的能力）✓

Extensive vs intensive properties · 广延性质与强度性质

FORMULAS · 公式

$D = \frac{m}{V}$ — Density = mass ÷ volume: extensive ÷ extensive gives an intensive property

> 密度＝质量÷体积：广延÷广延，得到强度性质

REMEMBER · 记住

- Extensive = depends on amount (mass, volume, length, surface area).
  > 广延＝与量有关（质量、体积、长度、表面积）。
- Intensive = amount does not matter (density, mp, bp, colour, temperature, viscosity).
  > 强度＝与量无关（密度、熔点、沸点、颜色、温度、黏度）。

WATCH OUT · 当心

- Temperature → extensive ✕ → intensive ✓ (a cup and a tub can both be 40 °C)
  > 温度 → 广延 ✕ → 强度 ✓（一杯和一缸都可以是 40 °C）

Physical vs chemical change · 物理变化与化学变化

REMEMBER · 记住

- Chemical change: new substance forms; hard to get the original back.
  > 化学变化：生成新物质；难以复原。
- Physical change: same substance; only form, phase or appearance changes.
  > 物理变化：同种物质；只改变形状、相或外观。

WATCH OUT · 当心

- Boiling makes gas → chemical ✕ → water vapour is still water → physical ✓
  > 沸腾产生气体 → 化学 ✕ → 水蒸气仍是水 → 物理 ✓
- Broken glass cannot be undone → chemical ✕ → still glass → physical ✓
  > 碎玻璃复原不了 → 化学 ✕ → 仍是玻璃 → 物理 ✓