🔬 Qualitative, quantitative, observation & interpretation

定性、定量、观察与解释

Date · 日期 _____ Topic · 知识点

CUES · QUESTIONS
提示 · 问题

1. Qualitative vs quantitative?
   > 定性与定量的区别?
2. Observation (class definition)?
   > 观察（讲义定义）?
3. Interpretation?
   > 解释?
4. Which statement type can be both qualitative and quantitative?
   > 哪类说法可以同时是定性和定量的?

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

Data, experiment, hypothesis, theory & law

数据、实验、假设、理论与定律

Date · 日期 _____ Topic · 知识点 2/2

CUES · QUESTIONS
提示 · 问题

1. Data (class definition)?
   数据（讲义定义）？
2. Hypothesis?
   假设?
3. Theory vs law in two words each?
   理论和定律各用两个词概括?
4. Is the Law of Conservation of Mass an explanation?
   质量守恒定律是一种解释吗?

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

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

🔬 Science Basics

科学基本概念

• 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。

Qualitative, quantitative, observation & interpretation · 定性、定量、观察与解释

REMEMBER · 记住

- Qualitative = senses, no numbers. Quantitative = measured or counted numbers.
  > 定性＝感官，无数字。定量＝测量或计数的数字。
- Observation = qualitative, sensed directly. Interpretation = what it means, not directly seen.
  > 观察＝定性、直接感知。解释＝它意味着什么，看不见。

WATCH OUT · 当心

- "4 beakers" is qualitative → it is a count, so quantitative.
  > 「4 个烧杯」是定性 → 计数，是定量。
- "A gas was produced" is an observation → interpretation; "bubbles formed" is the observation.
  > 「产生了气体」是观察 → 是解释；「出现气泡」才是观察。

Data, experiment, hypothesis, theory & law · 数据、实验、假设、理论与定律

REMEMBER · 记住

- Data = numbers from an experiment; it supports or does not support a hypothesis, never proves it.
  > 数据＝实验得到的数字；只支持或不支持假设，不能证明。
- Hypothesis = one unproven, testable guess ("If..., then..."). Experiment = test that gives a result.
  > 假设＝单一、未证实、可检验的猜测（如果……那么……）。实验＝得出结果的测试。

WATCH OUT · 当心

- "The data proves the hypothesis" → "the data supports the hypothesis".
  > 「数据证明了假设」→「数据支持了假设」。
- "A theory becomes a law when proven" → they never convert; why vs what.
  > 「理论被证明后变成定律」→ 两者不会转化；为什么 vs 是什么。