The practical paper asks you to record results, draw a graph, and then say what could have gone wrong. Marks are lost far more often for a missing unit or a vague improvement than for a wrong result. Follow this frame every time. 实验卷的失分多来自单位遗漏与含糊的改进建议，而非结果本身。

Before you start – the three variables

What you change 自变量 — The one thing you change on purpose. Name it and give the values you used, such as "light intensity at 10, 20, 30 and 40 cm from the lamp".

What you measure 因变量 — The thing that changes as a result. Say how you measured it and in what unit – "the number of bubbles counted in one minute".

What you keep the same 控制变量 — At least three things, each with how you kept it the same: same piece of pondweed, same temperature using a water bath, same volume of water. Just listing the names is not enough.

Recording your results

Table headings — Write the quantity and the unit at the top of each column, like this: time/s. Never write the unit next to every number in the table.

Same number of decimal places — All the readings in one column must have the same number of decimal places, decided by the measuring instrument.

Repeat and take a mean — Do each measurement three times, write down all three, then work out the mean. Showing only the mean loses a mark.

Drawings — Use a sharp pencil, draw clear single lines without shading, make the drawing large, and use a ruler for label lines that touch the structure exactly. Add a magnification or a scale if asked.

Drawing the graph

Which type — A line graph when the thing you changed is a number, a bar chart when it is a category such as different species.

Axes — The thing you changed goes on the horizontal axis, the thing you measured on the vertical. Label both with the quantity and the unit.

Scale and points — Choose a scale so the points use more than half the grid. Plot with small crosses and join with a ruled line or a smooth curve – never a zigzag from dot to dot.

Writing the conclusion

Say what the pattern is — Describe the trend using numbers from your results: "the rate increased from 12 to 34 bubbles per minute as the lamp moved closer".

Then say why, using biology — Explain with the biology you know: more light means more photosynthesis, so more oxygen is released. A description with no explanation only gets half the marks.

Mention anything that does not fit — Circle any result that breaks the pattern on your graph and suggest one reason for it.

Saying what went wrong, and how to fix it

Be specific — Say which step was hard and why: "the bubbles came too quickly to count accurately". Writing "human error" scores nothing.

Match each improvement to a problem — For that problem: "collect the gas in a measuring cylinder and measure its volume instead of counting bubbles". Every improvement must fix a problem you actually named.

Do not suggest the impossible — The improvement must be something a school laboratory could really do. "Use a machine that counts bubbles perfectly" is not an answer.

The write-up in order

What I changed, what I measured, and three things I kept the same, with how.

A numbered method that someone else could follow.

A results table with headings, units, repeats and means.

A graph with labelled axes and a clear line or bars.

A conclusion that describes the pattern with numbers and explains it with biology.

Two problems and two matching improvements.