

How do the more successful learners use past paper questions to deepen their learning?

A practical four-step guide for students taking A-level Physics.

A past-paper question does more than tell you whether you can earn marks. It can reveal which idea you need, where your reasoning breaks down, and whether you can express the answer clearly.

Don't use the mark scheme too early.

It is most useful when you have an answer of your own to compare with it. You may recognise the answer when you see it, but that is different from constructing the reasoning yourself. The aim is to give your own thinking a fair chance before asking the scheme for help.

The four steps

1 TRY THE QUESTION

Write your answer as clearly as you can. Show your working for a calculation. Do not look at the mark scheme yet.

2 TALK IT THROUGH

Discuss your ideas with a friend. Compare approaches, then try again in your own words, still without the mark scheme.

3 COMPARE CAREFULLY

Once you have taken the question as far as you reasonably can, read the mark scheme. Find the important differences between it and your answer.

4 WRITE IT AGAIN

After a few days, return to the question without the scheme. Answer again in your own words, showing your steps for calculations. Ask your teacher or tutor to check that your wording is unambiguous.

Use these steps for one worthwhile question at a time. The following pages explain what to do at each point.

START WITH YOUR OWN THINKING

1. Have a go first

Choose a question from a past paper and read exactly what it asks. Before opening the mark scheme, write the answer you would give in an exam as clearly as you can. For a calculation, show your working; for a written question, explain the physical idea in your own words. An incomplete answer is still a useful starting point.

If you get stuck, try to be precise about what you do not yet understand. For example: "I can identify the forces, but I am unsure which way the resultant force points." This helps you ask a friend, teacher or tutor for the kind of help you need. Try another approach, or put the question aside briefly and return to it.

A REAL ATTEMPT NEED NOT BE PERFECT

Keep your first answer so you can compare it with the mark scheme later.

2. Talk it through together

Before looking at the mark scheme, discuss the question with a friend or your tutor if you can. Explain your approach and listen to theirs. Trying to explain a step can help you notice where your answer is unclear or where a link in your reasoning is missing.

Then try the question again on your own, in your own words. Is your explanation clearer? Is anything still uncertain? Keep the mark scheme closed until you have taken your attempt as far as you reasonably can.

TRYING TO TEACH SOMETHING HELPS US LEARN IT

Explain your approach aloud as though you were teaching it. Notice where you struggle to explain a step; that may reveal what you need to understand better.

USE THE SCHEME AS FEEDBACK

3. Compare carefully

Sometimes the Physics is right, but the written answer does not make the reasoning explicit.

A mark scheme tells you what earns credit; it may not diagnose your particular mistake. Use it to notice one or two things you need to practise, rather than only counting marks.

Compare your first answer: did you miss an idea, a reasoning step, or clear wording?

4. Write it again

Put the question and mark scheme away for a few days. Then return to the question and answer it again without opening the scheme. This is retrieval practice: drawing the Physics back out of memory. It shows what you can really use and what still needs work. The effort of recall can also help the learning last. For a calculation, show your steps. For a longer answer, explain the Physics clearly in your own words.

Ask your teacher or tutor to read your first and revised answers. In particular, ask whether anything is ambiguous - wording that could mean more than one thing. A student may understand the Physics when speaking but leave out a crucial link on paper. Feedback from someone who knows the subject can help separate a misunderstanding from a communication problem.

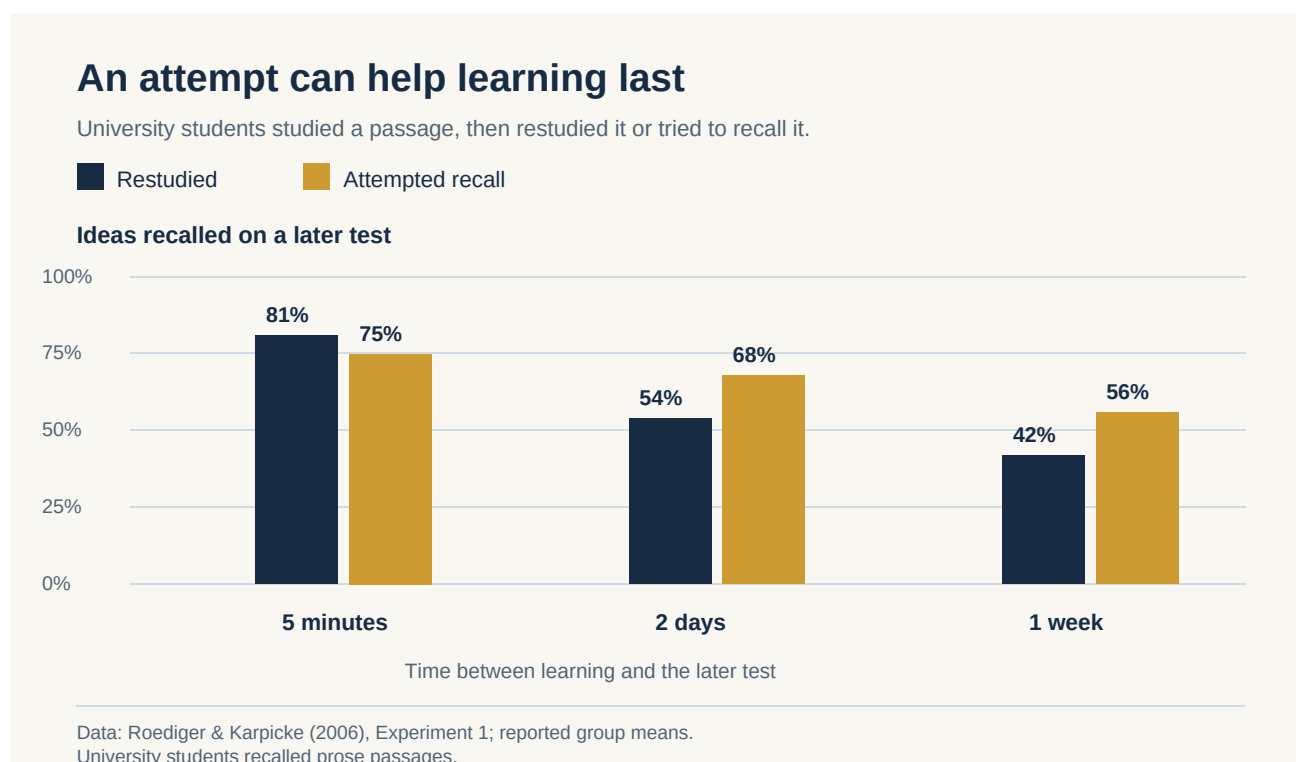
MORE QUESTIONS IS NOT ALWAYS MORE PROGRESS

Rushing through many past-paper questions does not necessarily mean you are learning more. Challenge yourself to work through a worthwhile question, leave a gap, then try it again from memory. Ask your teacher or tutor to check whether your written answer is clear and unambiguous. This takes more time, but it can deepen your understanding and help the learning last.

WHY THE FIRST ATTEMPT MATTERS

An attempt can help learning last

The graph below reports one experiment in which university students studied short prose passages. Some restudied the passage; others tried to recall it. Restudying helped on a test five minutes later. The recall attempt was associated with better recall after two days and one week.



The short-term difference was six percentage points in favour of restudying. After two days and one week, the attempted-recall group was 14 percentage points ahead.

For your own work, the practical message is modest: attempt the question, seek help when needed, then test whether you can explain the answer without the scheme in front of you. Repeat this throughout the course rather than relying on a single burst of revision near the exam.

Source for graph: Roediger, H. L., III, and Karpicke, J. D. (2006). "Test-enhanced learning: Taking memory tests improves long-term retention." *Psychological Science*, 17(3), 249-255. Experiment 1 group means. <https://doi.org/10.1111/j.1467-9280.2006.01693.x>

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