Learning How to Learn

The GCSE Edition

The Camden School for Girls 2025-26

Compiled by Simon Flynn

Y11 Parents Online Session

4.00pm - 5.00pm
Thursday 6th November

Simon Flynn

What we'll cover

- Why this session?
- Some of the science behind effective learning
- Some key learning strategies
- Using AI responsibly
- Creating the right environment
- Questions (if there’s time)

Why this session?

- We have the same goal
- How can we work together?
- Communication is key

Where to start

1. How do you study?
2. Why do you study this way?
3. Does it work (and how to you know)?

If their methods *feel* easy…

… they're almost certainly not effective.

- If an athlete or musician wants to make noticeable and continual improvements, how easy are their methods for achieving this likely to be?

- What's the difference if we change 'athlete' or 'musician' to 'learner'?

The problem we're addressing

- Many students work hard but use ineffective methods
- Re-reading notes repeatedly = illusion of learning
- Cramming the night before = short-term memory only
- Highlighting and re-reading feel productive but have minimal impact

Working smarter, not just harder

- More effortful strategies produce much greater long-term learning gains → *the struggle is the strategy*
- Active retrieval and self-testing → *retrieve to achieve*
- Regular, spaced practice → *space it, test it, ace it*
- Building sustainable study habits → *consistency compounds*

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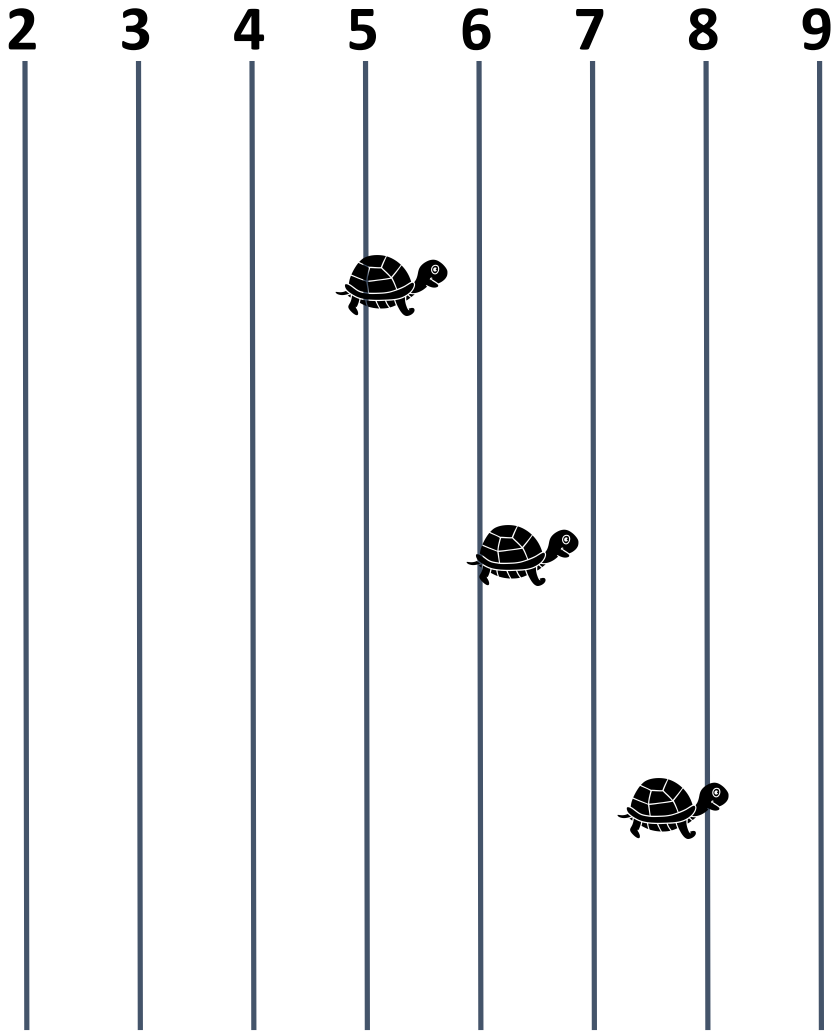
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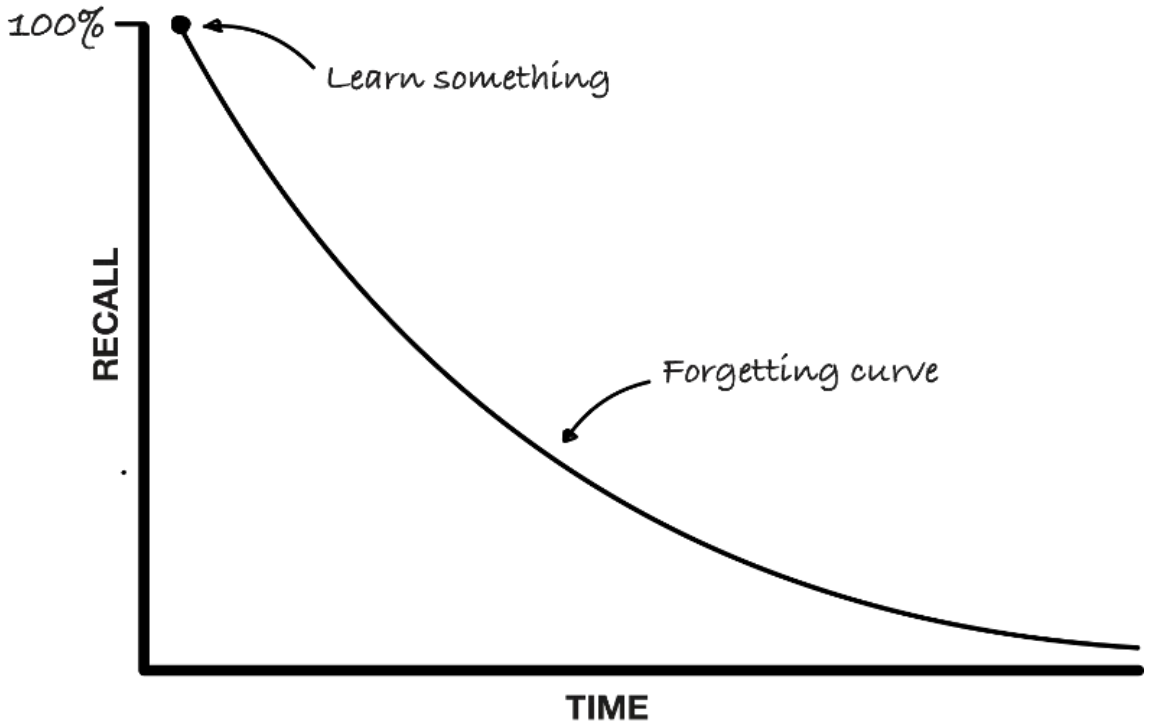
The Forgetting Curve



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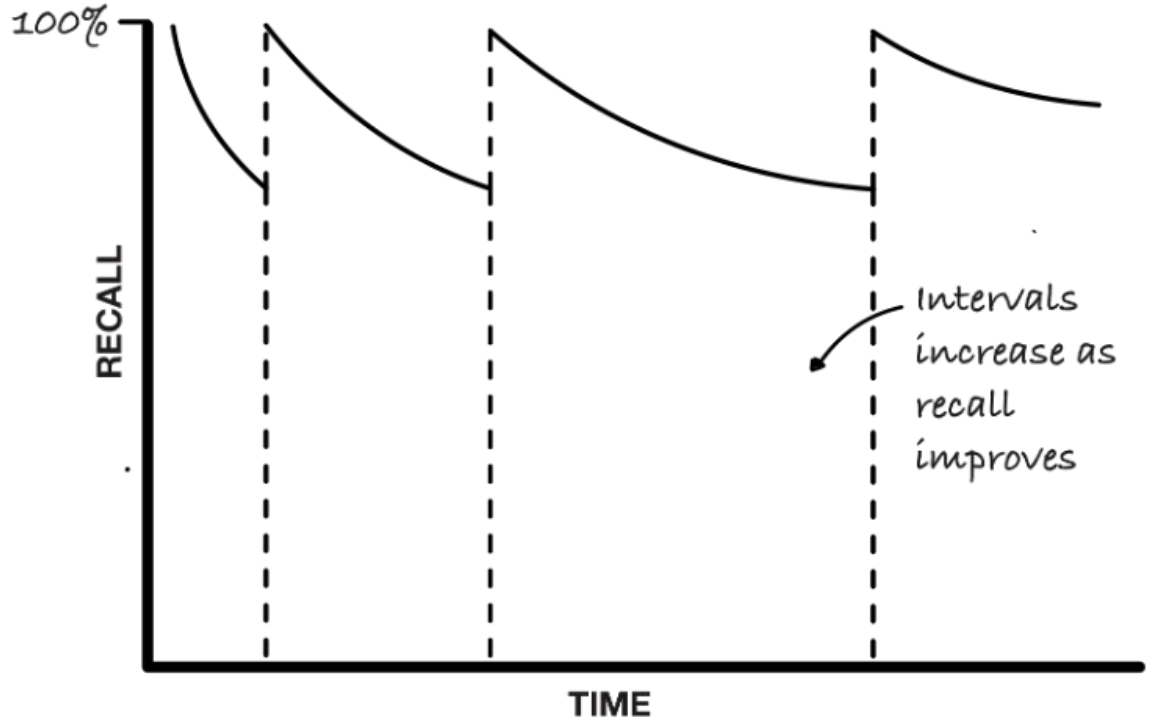
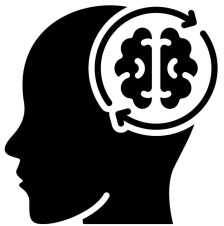


Learning How to Learn

The GCSE Edition



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Summary Table of Learning Strategies

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Brain Dumps	Writing everything you know about a topic for 15 minutes, then checking against notes to identify gaps.	Allows you to track learning progress over time by comparing dated attempts on the same topic.	8
Flashcards	Testing yourself with question-and-answer cards, saying responses aloud rather than just thinking them.	Provides immediate feedback on what you know and don't know, enabling targeted revision.	6
Folding Frenzy	A multi-stage revision technique creating increasingly condensed versions of notes through folding and summarising.	Enables spaced processing of information and provides clear visual indicators of learning progress.	12
Generation Effect	Attempting to produce answers, solutions, or explanations yourself before checking sources or being given the information.	Information you generate yourself, even if initially incorrect, creates stronger memory pathways than passively reading the same information.	5
Knowledge Maps	Creating visual representations that connect related ideas and concepts to show relationships between topics.	Reveals connections between concepts that may not be apparent in linear text, improving comprehension.	9
List It	A free recall exercise where you list everything you know about a topic within a set time limit.	Gives clear, immediate feedback on knowledge gaps without the need for external materials.	8
Pomodoro Technique	Working in focused 25-minute sessions followed by short breaks to maintain concentration and prevent burnout.	Maintains high levels of concentration whilst preventing mental fatigue through regular breaks.	16
Read, Recite, Review	Read material, recall main ideas from memory, then check against source to identify gaps.	Combines active retrieval practice with immediate feedback on knowledge gaps.	11
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Self-Testing	Deliberately bringing memories to mind to strengthen neural connections and improve long-term retention.	Each retrieval attempt strengthens memory pathways, making future recall easier and more reliable.	5
Teaching Others	Explaining concepts to someone else, which forces you to organise ideas clearly and reveals knowledge gaps.	Compels you to organise information clearly and exposes areas where understanding is incomplete.	5
Using AI to Support Learning	Using AI chatbots to create study plans, explain difficult topics, generate practice questions, and provide feedback while ensuring you still do the learning yourself.	Acts like a 24/7 personal tutor that can explain things in different ways	13
Waterfall Method	A systematic approach to flashcard review where cards are sorted into 'know it' and 'struggled' piles until mastery is achieved.	Ensures difficult material receives more attention whilst reducing time spent on already-mastered content.	7

List It

This is a simple free recall task that is very versatile. It can feel challenging, but this is a good thing, and it provides clear feedback on what you do and don't know.

Time needed: 5-10 minutes

Choose a topic, set yourself a time limit and...

- List as many keywords as you can
- List as many facts as you can
- List as many key events/quotes/individuals as you can
- List as many causes of X as you can
- List as many consequences of Y as you can

Example: List everything you know about photosynthesis

- Chloroplasts, sunlight, glucose, oxygen, carbon dioxide, water, green plants...

Brain Dumps

Brain dumps can be incredibly effective as an extension of 'list it' above.

Time needed: 10-15 minutes

Steps:

1. Choose a topic and set a timer for 15 minutes
2. Write everything you know about the topic
3. Don't stop writing - even if you repeat yourself
4. Check what you've written against your notes/textbook
5. Identify and focus on gaps
6. Date and store sheets so you can 'see' your progress when doing dumps at a later date.

To create a gentler, if less effective, version, compile a list of keywords, terms, people, countries, and other relevant elements connected to a topic and write uninterrupted, using these as prompts.

= ½ mv² **= W/t** **= F x s** **= mcΔT** **= mgh** biofuel **chemical** conduction **conservation of energy** dissipate **distance** efficiency **elastic potential** electricity **electrostatic** force **fossil fuels** friction **geothermal** gravitational potential **heating** hydroelectric **insulation** Joule (J) **kilogram (kg)** kinetic **lubricant** magnetic **metre (m)** Newton (N) **non-renewable** nuclear **power** renewable solar **specific heat capacity** store **thermal** tidal **transfer** useful energy **wasted energy** water waves **Watt (W)** waves **wind** work done

So, a brain dump on energy might start... Energy cannot be created or destroyed but is only transferred from one store to another. There are eight energy stores. These are: kinetic, gravitational potential, chemical, elastic potential, internal (thermal), nuclear, electrostatic, and magnetic. Anything moving has a kinetic energy store. Anything raised a height has a gravitational potential store. Food, fuels and batteries are examples of chemical stores. Anything that can be squashed or stretched has an elastic potential store. A change in temperature means a change in the internal (thermal) store. There are four energy transfers: work done (mechanical), radiation...

Read, Recite, Review

This is a research-backed study technique that can help you learn and remember information more effectively than simply reading through your notes or textbook repeatedly.

How It Works

Instead of just reading through a chapter or your notes once and moving on, this method involves three distinct steps:

1. *Read* – First, read through the material as you usually would, focusing on understanding the content rather than trying to memorise everything immediately.
2. *Recite* – After reading, put your textbook or notes aside, write a summary of what you've just read without referring back to the original material.
3. *Review* – Finally, go back to your textbook or notes to check what you remembered correctly and what you missed. Pay particular attention to the knowledge gaps.

Why This Method Works

Research has shown that actively recalling information from memory strengthens your ability to remember it later. When you force yourself to retrieve information during the "recite" phase, you're essentially practising the same mental process you'll need during your GCSE exams.
The review phase is equally important because it helps you identify which concepts you haven't fully grasped, allowing you to focus your future study time more efficiently.

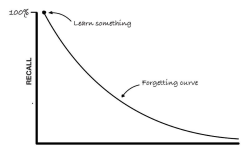
Practical Tips for GCSE Students

- *Take your time:* Don't rush through the reading phase. Understanding is more important than speed.
- *Be honest during recitation:* If you can't remember something, don't immediately look it up. Note the gap and address it during the review phase.
- *Use this method regularly:* Rather than cramming, use Read, Recite, Review consistently throughout your course. This spaced practice will help you retain information for a longer period.
- *Apply it to different subjects:* Whether you're studying Biology, History, or English Literature, this method can help you engage more deeply with the material.

This technique requires more initial effort than passive rereading, but research consistently shows it leads to better long-term.

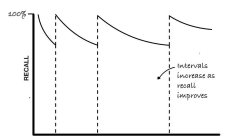
The Forgetting Curve and Spaced Practice

The **Forgetting Curve** reveals a rather uncomfortable truth: we forget most of what we learn incredibly quickly. However, when we review information at carefully timed intervals, we can dramatically slow down forgetting and move knowledge from short-term to long-term memory.



The 1-2-7... Rule

- Review new material **1 day** after first learning it
- Review it again **2 days** later
- Then review it **7 days** after that, and so on
- This simple pattern can help cement information in your long-term memory



'The Only Real Mistake Is the One from Which We Learn Nothing'

Making mistakes is one of the most powerful ways to learn and grow, especially during your GCSE studies. Rather than seeing mistakes as failures, try to view them as valuable learning opportunities that can help you improve.

Examples of What You Can Learn from Different Types of Mistakes

- *Maths* – If you consistently make calculation errors, you may need to slow down and check your working more carefully.
- *Biology* – confusing processes like mitosis and meiosis demonstrate the need for more precise diagrams and memory techniques.
- *English literature* – a poor essay structure indicates that you need to work on planning and organising your arguments.
- *History* – Confusing dates or causes of events indicates that you need better revision techniques, such as creating timelines or mind maps, to see connections between events.

Command Word Mistakes - Particularly Important

Many students lose marks because they fail to understand what the question actually asks. If you describe when asked to *evaluate*, or provide facts when asked to *analyse*, you're missing easy marks. Key command words include (check with your teachers regarding specific subjects):

- *Describe* – say what something is like
- *Explain* – give reasons why something happens
- *Analyse* – examine in detail, looking at different parts
- *Evaluate* – weigh up advantages and disadvantages, make a judgement
- *Compare* – show similarities and differences
- *Assess* – make an informed judgement

Getting these wrong teaches you to slow down, highlight the instruction word, and check what type of answer structure is needed before you start writing.

How to Learn from Your Mistakes

Don't just correct the answer and move on. Take time to understand why you went wrong. Ask yourself:

- Did I misunderstand the question?
- Did I lack knowledge?
- Was it a careless error?

Keep a record of common mistakes in each subject. This creates a personalised revision guide showing your weak spots. Many successful GCSE students find that their most significant improvements come from systematically addressing these recurring errors.

Remember, even top students make mistakes regularly whilst learning. The difference is that they see each mistake as valuable feedback rather than a reason to feel discouraged. Your mistakes today are building the knowledge and skills you'll need for your exams.

The Power of Feedback

Effective learning is about more than simply repeating the same information endlessly. It's about identifying your weaknesses and addressing them head-on. Paying attention to the feedback from your retrieval practice can make your revision more targeted and efficient.

Understanding Feedback from Flashcards

- *Identify Weak Areas:* Pay attention to which flashcards you consistently struggle with. These indicate areas that need more focus.
- *Track Progress:* Record how often you get each card right or wrong. This will help you see improvements over time and pinpoint persistent challenges.
- *Adjust Content:* Modify cards that are too easy or too difficult. Simplify complex cards or add detail to overly simple ones.
- *Spaced Repetition:* Use feedback to determine the intervals you review each card. Review difficult cards more frequently and easier ones less often.

Utilising Feedback from Brain Dumps

- *Highlight Gaps:* After completing a brain dump, compare your notes to your study materials. Highlight any missing information or inaccuracies.
- *Focus on Gaps:* Use identified gaps to guide your next study session, concentrating on these areas to build a more comprehensive understanding.
- *Reflect on Understanding:* Assess the depth and breadth of your knowledge. Are there areas where you only have a surface-level understanding? Use this insight to deepen your study.
- *Revisit and Review:* Regularly perform brain dumps on the same topic to track progress. Use feedback to revise your study strategy, focusing on areas that show little improvement.

Incorporating Feedback from Knowledge Maps

- *Visualise Connections:* Consider how concepts are connected as you create a knowledge map. Identify any missing links or areas where connections are unclear.
- *Identify Key Concepts:* Use the map to pinpoint key concepts central to your understanding. Ensure you have a solid grasp of these before moving on to more complex ideas.
- *Spot Gaps:* Identify areas in the map that require additional detail. These gaps indicate where further study is needed.
- *Iterate and Expand:* Continuously update your knowledge map as you learn more. Use it to track your understanding and ensure all relevant information is included.

By actively engaging with feedback from flashcards, brain dumps, and knowledge maps, you can tailor your study approach to address weaknesses, reinforce strengths, and enhance learning efficiency.

Using AI to Support Learning

AI tools *can* be powerful learning companions when used thoughtfully and ethically. Here are practical ways you can enhance your studies whilst maintaining academic integrity.

- **Use AI as a learning tool, not a replacement for thinking.** The goal is to understand concepts yourself, not to bypass the learning process.
- **While AI is helpful, don't become overly dependent on it.** Practice working independently to ensure you can perform well in exams without assistance.
- **Always fact-check important information, especially dates, figures, and scientific facts.** AI can make mistakes, particularly with very recent information or precise details.

Study Planning and Organisation

AI can help create personalised revision timetables based on your exam dates, subject priorities, and available time. You can ask for suggestions on breaking down large topics into manageable chunks, or get help structuring your study sessions for maximum effectiveness. AI tools can also suggest active learning techniques suited to different subjects, from mind mapping for history to practice problem sequences for maths.

Example prompts:

- 'Create a 6-week revision timetable for GCSEs: Maths, English Language, Biology, History, and French. I have 2 hours per day on weekdays and 4 hours on weekends'
- 'Break down the AQA GCSE Chemistry topic 'Atomic Structure' into daily study chunks for one week'
- 'Suggest active learning techniques for memorising dates in Edexcel GCSE History'

Understanding Complex Concepts

When struggling with challenging topics, AI can provide alternative explanations in different formats. For instance, if you're finding photosynthesis confusing in biology, you could ask for analogies, visual descriptions, or step-by-step breakdowns. AI excels at explaining concepts at different levels of complexity, helping you build understanding gradually from basic principles to exam-level detail.

Example prompts:

- 'Explain photosynthesis for AQA GCSE Combined Science Biology - focus on the key processes they expect students to know'
- 'Break down quadratic equations using Edexcel GCSE Maths specification requirements - I'm struggling with the factorising method'
- 'What's electromagnetic induction in AQA GCSE Physics? Use a simple analogy to help me understand'

Practice and Feedback

AI can generate practice questions similar to past papers, create flashcards for key terms, or provide instant feedback on your understanding. For subjects like English literature, you could discuss themes and character analysis to test your interpretations. In maths and sciences, AI can work through problem-solving methods with you, helping identify where you've gone wrong in calculations or logical reasoning.

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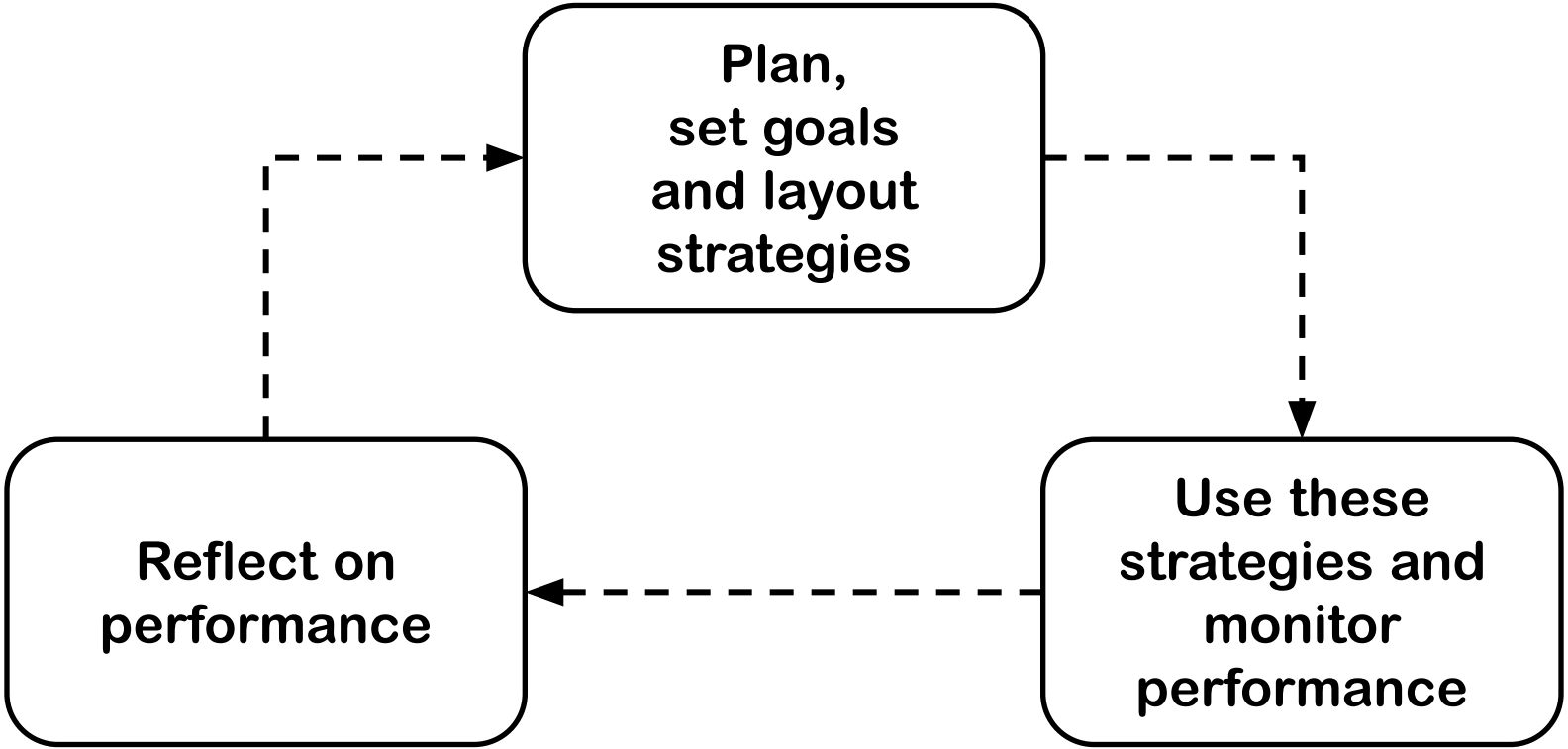
Plan,
set goals
and layout
strategies
Use these
strategies and
monitor
performance
Reflect on
performance

Brain Dumps

How It Works:

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7. Date and store sheets to track progress over time

Brain Dumps

Why This Works:

- Reveals exactly what they knows and doesn't know
- Provides immediate feedback
- You can see dated attempts showing improvement

Read, Recite, Review

1. **Read** – understand the material first (focus on comprehension)
2. **Recite** – put away materials and write/say what you remember
3. **Review** – check against source, identify gaps

Read, Recite, Review

Why It Works:

- Combines understanding with retrieval practice
- Identifies knowledge gaps immediately
- More effective than reading three times
- Self-testing built into the process

AI as a Learning Companion, Not a Shortcut

- Creating study plans and revision timetables
- Explaining difficult concepts in different ways
- Generating practice questions
- Testing understanding
- Learning exam techniques

Effective AI Prompts

- 'Explain photosynthesis for AQA GCSE Biology – focus on key processes'
- 'Break down quadratic equations using Edexcel GCSE Maths specification requirements'
- 'Generate 5 practice questions on simultaneous equations in their typical style'
- 'Quiz me on the Weimar Republic using Edexcel mark scheme expectations'

If Responses Aren't Helpful

- 'Explain this more simply'
- 'Use an analogy or real-world example'
- 'Give me practice questions instead of just theory'
- 'Frame this in the context of GCSE exam requirements'

The Power of Habits

- The best learners tend to have excellent learning habits.

- Forming new habits is much easier said than done – studies show that 88% of people who set New Year's resolutions fail them within the first two weeks.

Improving study habits

- Know Where and When
- Use Habit Stacking
- Establish a Dedicated Study Space
- Minimise Digital Distractions
- Set Goals and Rewards

Improving study habits

- Establish a Consistent Routine
- Prioritise and Organise Your Tasks
- Manage Your Physical Environment
- Incorporate Movement and Exercise
- Prioritise Your Well-being

In a nutshell…

A simple question that a student can repeatedly ask themselves to help guide their decisions and actions is:

- *What would an effective learner do?*

ParentMail

You will shortly receive a ParentMail communication. This will include:

- A link to a video of today's session
- A link to a PDF of the Y11 *Learning How to Learn* booklet
- A link to a short feedback form

A short Q&A

- Please write any questions you have in the chat box and I’ll do my best to answer them.

Thank you!