Education & Learning / Memory Systems

Generate optimal review intervals based on forgetting curve research — retention optimization for long-term memory.
Difficulty: Intermediate
Model: GPT-4 / Claude / Gemini
Use Case: Study Planning, Retention Optimization
Updated: June 2026
Why This Prompt Exists
Without spaced repetition, learners forget 50-80% of new information within 24 hours. Most students cram — which produces short-term memory, not long-term retention.

You get:

- forgetting 50-80% of material within 24 hours (cramming doesn’t work)
- no review schedule (material decays, never reinforced)
- uneven review timing (too soon or too late)
- wasted study time (re-studying what you already know)
- poor exam performance (information not in long-term memory)

But spaced repetition follows patterns:

- optimal intervals: 1 day, 2 days, 4 days, 7 days, 14 days, 30 days
- forgetting curve: memory decays exponentially without review
- retrieval strength: each successful recall strengthens memory
- storage strength: increases with each spaced review
- adaptive intervals: longer for easy items, shorter for difficult

Without scheduling, memory decays.
This prompt creates spaced repetition schedules based on forgetting curve research.

The Prompt

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Assume the role of a memory researcher who designs spaced repetition schedules.

Your task is to create optimal review intervals for long-term retention.

Generate:

1. LEARNING PARAMETERS
   - Material type: [facts / vocabulary / concepts / procedures / skills]
   - Difficulty level: [Easy / Medium / Hard]
   - Target retention window: [days / weeks / months / years]
   - Initial learning date: [date]

2. FORGETTING CURVE INTERVALS

| Review Number | Interval After Previous | Cumulative Days | Retention Target |
|---------------|-------------------------|-----------------|------------------|
| Initial learning | — | Day 0 | 100% |
| Review 1 | 1 day | Day 1 | ~80% |
| Review 2 | 2 days | Day 3 | ~85% |
| Review 3 | 4 days | Day 7 | ~90% |
| Review 4 | 7 days | Day 14 | ~92% |
| Review 5 | 14 days | Day 28 | ~95% |
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Review 6	30 days	Day 58	~96%
Review 7	60 days	Day 118	~97%
Review 8	90 days	Day 208	~98%

3. ADAPTIVE INTERVALS (based on difficulty)

Difficulty	Review 1	Review 2	Review 3	Review 4	Review 5
Easy	2 days	5 days	10 days	20 days	40 days
Medium	1 day	3 days	6 days	12 days	24 days
Hard	1 day	2 days	4 days	7 days	14 days

4. DAILY REVIEW SCHEDULE

Week 1 (Days 1-7)
- Day 1: Review [items learned Day 0]
- Day 2: Review [items learned Day 0]
- Day 3: Review [items learned Days 0 and 1]
- Day 4: Review [items learned Days 0 and 2]
- Day 5: Review [items learned Days 0 and 3]
- Day 6: Review [items learned Days 0 and 4]
- Day 7: Review [items learned Days 0 and 5]

Week 2 (Days 8-14)
- Day 8: Review [items from Day 0]
- Day 10: Review [items from Day 2]
- Day 12: Review [items from Day 4]
- Day 14: Review [items from Day 0 and Day 7]

5. RETRIEVAL PRACTICE METHODS

Review Type	Method	Best For
Active recall	Flashcards, closed-book	Facts, vocabulary
Elaboration	Explain in own words	Concepts
Application	Solve novel problems	Procedures, skills
Synthesis	Connect to other knowledge	Integration

6. FORGETTING CURVE ADJUSTMENTS

Factor	Adjustment	Reason
High initial mastery	Extend intervals	Less forgetting
Low initial mastery	Shorten intervals	More forgetting
Complex material	Shorten intervals	Faster decay
Simple material	Extend intervals	Slower decay

7. COMMON SCHEDULING MISTAKES

Mistake	Why It Fails	Correct Approach
Cramming	Rapid forgetting	Space reviews over time
Reviewing too soon	Wasted effort	Wait until just before forgetting
Reviewing too late	Memory decayed beyond recall	Shorter intervals
No adaptive intervals	Same for easy and hard	Adjust by difficulty

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| Passive re-reading | Illusion of fluency | Active recall required |

INPUTS:

Material type:
[FACTS / VOCABULARY / CONCEPTS / PROCEDURES / SKILLS]

Difficulty level:
[EASY / MEDIUM / HARD]

Target retention window:
[E.G., "Exam in 30 days", "Long-term mastery"]

Amount of material:
[E.G., "50 flashcards", "3 chapters", "1 skill"]

RULES:
- First review within 24 hours of learning (critical for
consolidation)
- Double intervals after each successful recall (progressive spacing)
- Shorten intervals for difficult material (hard = more frequent)
- Extend intervals for easy material (easy = less frequent)
- Use active recall, not passive review (testing > re-reading)
- Schedule reviews just before forgetting (optimal difficulty)
- Track performance to adjust intervals (adaptive spacing)
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How To Use It

- First review within 24 hours of learning — critical for memory consolidation.
- Double intervals after each successful recall — progressive spacing increases

efficiency.

- Shorten intervals for difficult material — hard content needs more frequent review.
- Extend intervals for easy material — don’t waste time on what you already know well.
- Use active recall, not passive review — testing yourself is far more effective than re-reading.
- Schedule reviews just before forgetting — optimal difficulty strengthens memory most.
- Track performance to adjust intervals — adaptive spacing responds to your actual retention.

Example Input

Material type: “Medical terminology (500 terms)”

Difficulty level: “HARD”

Target retention window: “Board exam in 6 months”

Amount of material: “500 flashcards”

Why It Works
Without spaced repetition, learners forget 50-80% within 24 hours. Cramming creates short-term memory, not long-term retention.

This framework improves outcomes by forcing:

- interval scheduling (optimal spacing based on forgetting curve)
- difficulty adaptation (hard material = shorter intervals)
- daily review planning (when to review what)
- retrieval method selection (active recall vs. passive review)
- forgetting curve adjustments (factors that affect decay rate)

Failure modes this prevents:

- 80% forgetting within 24 hours (cramming failure)
- wasted review time (reviewing too soon or too late)
- uneven spacing (no progressive intervals)
- passive re-reading (illusion of fluency)
- poor exam performance (knowledge not in long-term memory)

This improves on: Cramming and random review. Spaced repetition optimizes retention per unit of study time.

Related to: MS-03 (Retrieval Practice) for recall methods; MS-06 (Forgetting Curve) for decay tracking.

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