Practice Makes Permanent
Practice Design that Enforces Retrieval, Transfer, and Evidence-Weighted Focus

1. **Executive Summary**
   Practice Makes Permanent (PMP) generates pen-and-paper worksheets designed for retention and transfer, not for testing. It enforces these non-negotiables:

• No MCQs
• No marks
• No grading or labels
• No hints or worked solutions
• All questions must be answerable from the supplied chapter text

PMP operates in two modes:

1. Generic practice mode (density-controlled)
2. Diagnostic-based practice mode (evidence-weighted distribution rules)

The core claim is disciplined practice design: worksheets that drive retrieval, application, and interpretable formative checking without converting practice into an exam artifact.

2. Research Foundations

2.1 Retrieval practice drives durable learning

Retrieval practice research shows that actively recalling information improves long-term retention more than passive review. PMP is built around effortful recall and reasoning prompts rather than recognition items. [1]

2.2 Spacing and distributed practice improve retention

Distributed practice effects are robust across many studies and conditions. PMP supports distributed retrieval by generating varied prompts and mixed practice structures rather than single-format repetition. [2]

2.3 Desirable difficulties improve learning efficiency

Learning improves when tasks are productively effortful without becoming chaotic. PMP operationalizes desirable difficulty through density control and cue reduction while keeping all questions chapter-grounded. [3]

3. Diagnostic-Based Practice

Diagnostic-based practice is explicitly defined as evidence-weighted allocation of practice effort without exposing the diagnostic artifact, labeling the student, or prescribing interventions.

PMP enforces diagnostic mode through governance constraints

• Validation errors if diagnostic evidence text is missing or below a minimum sufficiency threshold

• Total questions fixed at 12
• Section-level structure fixed
• Definition-style prompts capped to one across the entire worksheet
• Two internally selected focus concepts must appear exactly twice each, in different formats, to target instability without turning the worksheet into a label-driven intervention

This is not personalization as messaging. It is controlled redistribution of practice effort based on evidence, while keeping outputs non-diagnostic in tone and non-evaluative in claims.

4. **Higher-Order and Experiential Alignment**

PMP enforces higher-order thinking by construction:

• Diagnostic mode requires explanation, causal reasoning, and "why/how" prompts at scale
• Application items forbid templates and cues and require scenario-based reasoning
• Linking tasks force students to connect concepts across the chapter rather than recite isolated facts

This aligns with competency intent in NEP 2020 without claiming a new pedagogy or replacing classroom teaching models. [4]

5. **Teacher Rubrics (Why they exist in a practice worksheet)**

PMP generates analytic rubrics per question to support formative checking without converting practice into a test. This follows formative assessment logic: fast interpretation and instructional adjustment, not ranking. [5]

Rubric constraints are explicit and moderation-friendly:

• expected points
• acceptable variations
• common errors and omissions

This allows teachers to interpret practice evidence quickly and consistently while keeping the worksheet student-facing and non-grading by design.

References

[1] Henry L. Roediger III and Jeffrey D. Karpicke (2006). Testing effect and retrieval practice. (User pointer: SAGE Journals.)
[2] Nicholas J. Cepeda et al. (2006). Distributed practice meta-analysis. (User pointer: PubMed.)
[3] Robert A. Bjork and Elizabeth L. Bjork (2011). Desirable difficulties. (User pointer: bjorklab.psych.ucla.edu.)
[4] Ministry of Education, Government of India. NEP 2020 and PARAKH roadmap. (User pointer: Education Ministry.)

[5] Paul Black and Dylan Wiliam (1998). Formative assessment and classroom learning. (User pointer: Evaluation and Assessment; DOI previously provided.)