

# Product Overview

## SAT Roadmap: An Adaptive, Learner-Centered Study System

### Product Goal

Help a student who is partway through SAT prep clearly understand **where they are, what matters most next, and whether their effort is actually moving them toward their target score**, while maintaining motivation and minimizing wasted time. The system prioritizes *direction, feedback, and confidence* over content volume.

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### Core User Experience (Student POV)

When I log in, I immediately see:

- How prepared I am right now
- What I should focus on next to improve fastest
- How close I am to my goal
- A clear path forward that doesn't feel overwhelming

The product feels like a **guide**, not a content dump.

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### System Architecture (Conceptual)

The product is organized around three pillars:

1. **The Roadmap (Structure & Direction)**
2. **Learning Zones (Measured Skill Development)**

### 3. Adaptive Intelligence Layer (Guidance, Feedback, Motivation)

All features ladder into one of these pillars.

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## 1. SAT Study Roadmap

### Purpose

Give the student a mental model of their journey and reduce anxiety by making progress visible and finite.

### Description

- A visual roadmap divided into:
  - SAT sections (Math, Reading, Writing)
  - Topics within each section
  - Sub-skills within each topic
- Each roadmap node shows a mastery state:
  - Unseen
  - In Progress
  - Shaky
  - Solid
- Nodes surface visually based on importance and urgency.

### Student Value

“I can see exactly what I’ve done, what’s left, and what actually matters.”

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## 2. Adaptive Study Focus (With User Control)

### Purpose

Prevent inefficient studying while preserving learner autonomy.

### Description

- A “Recommended Focus” panel highlights the top 1–3 topics with the highest ROI toward the student’s target score.
- Each recommendation explains *why* it matters (e.g. score impact, weakness, test frequency).
- Students can override recommendations and choose any topic.
- The system recalculates projected impact based on their choice.

### Student Value

“I know what’s optimal, but I’m still in control.”

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## 3. Progress & Readiness Tracking

### Purpose

Answer the question: *Is this working?*

### Description

- Displays:
  - Target score vs current projected score
  - Simple readiness state (on track / borderline / at risk)
- Projections are based on:
  - Topic mastery

- Review performance
- Recency and consistency
- Avoids false precision; focuses on direction and trend.

## **Student Value**

“I can tell if I’m actually improving and whether I need to adjust.”

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## **4. Learning Zones (Per Topic)**

### **Purpose**

Turn studying into measurable understanding instead of passive consumption.

Each roadmap topic opens a **Learning Zone**.

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### **4.1 Pre-Review Assessment (Baseline)**

#### **What it is:**

- A short set of questions (no video, no hints).
- Taken before instruction.

#### **Why it exists:**

- Establishes current understanding.
- Feeds adaptive logic and confidence modeling.

#### **Student POV:**

“Let me see what I already know before diving in.”

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### **4.2 Checkpointed Video Learning**

**What it is:**

- An instructional video (EDPuzzle-style).
- Pauses at key moments for embedded questions.
- Requires an answer before continuing.

**Why it exists:**

- Ensures active engagement.
- Surfaces misconceptions immediately.

**Student POV:**

“I can’t just zone out — I actually have to understand.”

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## 4.3 Capstone Practice Problem

**What it is:**

- A final, do-it-yourself problem after instruction.
- No step-by-step guidance.

**Why it exists:**

- Tests skill transfer, not recognition.
- Determines whether the topic moves toward “solid.”

**Student POV:**

“Can I actually do this on my own now?”

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## 4.4 Post-Review Mode

**What it is:**

- Review questions only (no video).
- Accessible later for reinforcement.

#### **Why it exists:**

- Supports spaced repetition.
- Allows fast reassessment.

#### **Student POV:**

“Let me check if this really stuck.”

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## **5. Persistent Adaptive Chatbot**

### **Purpose**

Provide continuous, contextual support without breaking flow.

### **Description**

- Available everywhere:
  - Dashboard
  - Roadmap
  - Learning Zones
  - Daily check-ins
- Can:
  - Explain concepts
  - Ask clarifying questions (“What’s your current understanding?”)
  - Identify gaps

- Adjust tone based on struggle or confidence
- Learns from:
  - Review results
  - Errors
  - Time to test
  - Recent activity

## **Student Value**

“It feels like someone’s paying attention to how I learn.”

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## **6. Daily Check-In & Momentum System**

### **Purpose**

Maintain consistency and detect burnout early.

### **Description**

- Lightweight daily prompt:
  - What did you work on?
  - How confident do you feel?
- Feeds:
  - Study streaks (with recovery, not punishment)
  - Burnout signals
  - Roadmap pacing adjustments

## **Student Value**

“I stay honest with myself without feeling judged.”

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## 7. Review & Error Intelligence (Lightweight)

### Purpose

Prevent repeated mistakes.

### Description

- Errors are loosely categorized (conceptual, careless, timing).
- Patterns influence:
  - Adaptive focus
  - Chatbot explanations
  - Review prompts

### Student Value

“I stop making the same mistakes over and over.”

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## 8. Implied but Documented Extensions (Not Built)

These are **explicitly referenced but not implemented**, to show product vision and judgment:

- Coach dashboards
  - Organization-level insights
  - Long-term learner journey beyond SAT
  - Deeper analytics and experimentation
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## **Product Philosophy (For Agents)**

- Direction beats volume
- Clarity beats cleverness
- Adaptation without control is patronizing
- Control without guidance is overwhelming
- Every feature should help answer:
  1. What should I do next?
  2. Is this working?
  3. Am I on track?