

Modes of Practice for Students

Students can choose between two modes:

1. Whiteboard Mode (Handwritten Steps)

Overview:

- Scrollable whiteboard interface
- Horizontally ruled lines (medium gap)
- Each new line = one step
- Every step is auto-labeled (Step 1, Step 2, ...)

Step-by-Step Functionality:

Whiteboard UI

- Scrollable canvas
- Horizontal ruled lines (like a notebook)
- Medium line gap (comfortable for handwriting)

Step Entry

- Student writes on Line 1
- Label: Step 1 appears automatically on the left
- To the left of “Step 1” → show a button: “Check Step”

Validation Flow

On clicking **Check Step**:

1. Capture:
 - Handwritten step (convert to text via OCR if needed)
 - Original question (stored at session start)

- All previous steps (Step 1, Step 2, ... before current)

2. Send POST request to Gemini API:

- Endpoint:



https://generativelanguage.googleapis.com/v1beta/models/gemini-pro:generateContent?key=YOUR_API_KEY

Body structure:


```
{
  "contents": [
    {
      "parts": [
        {
          "text": "Original question: {originalQuestion}\nPrevious steps: {step1, step2, ...}\nCurrent step: {studentStep}\nCheck if this step is correct. If not, explain the type of mistake and why."
        }
      ]
    }
  ]
}
```

○


3. Gemini responds with:

-  or 
- Mistake type (if incorrect)
- Short explanation (optional)


If Step is Correct

- Show feedback:  "Correct! Move Forward"
 - Automatically activate the next line:
 - Step 2 appears below
 - Ready for writing
-

If Step is Incorrect

- Show message:  “Incorrect. What would you like to do?”
- Show two buttons:
 1. **“Get a Hint”**
 - Send hint request to Gemini with same context
 - Show response inline in gray bubble
 2. **“Get Explanation”**
 - Open AI tutor bot panel (like Khanmigo)
 - Bot explains *why* the step is wrong using:
 - Original question
 - All prior steps
 - Current step

At Final Step

- Show celebration animation or icon:
 “Great job! You’ve completed the solution.”

Typing Mode (Bot Chat Interface)

Overview:

- Student types steps into a chat-style input box
- Bot validates step-by-step like a tutor
- Same validation logic applies

Step-by-Step Functionality:

Step Entry

- Student types **Step 1** (e.g., $2x = 8$)
- Clicks **“Check Step”**

Validation Flow

On clicking **Check Step**:

1. Capture:

- Typed current step
- Original question
- All previous steps (context array)

2. **Send POST request to Gemini API:**



- Endpoint:

https://generativelanguage.googleapis.com/v1beta/models/gemini-pro:generateContent?key=YOUR_API_KEY


Body:

```
{
  "contents": [
    {
      "parts": [
        {
          "text": "Original question: {originalQuestion}\nPrevious steps: {step1, step2, ...}\nCurrent step: {studentInput}\nCheck if this step is correct. If not, explain the mistake and suggest what to do."
        }
      ]
    }
  ]
}
```


3. Gemini responds with:

-  or 
- Mistake type
- Optional explanation



 **If Step is Correct**

- Bot replies:  “Correct. Let’s move to the next step.”
- Prompt the student for the next step

● If Step is Incorrect

- Bot replies:  “This step seems incorrect.”
- Follow-up options:
 1. “**Give me a hint**” – Gemini provides progressive hint
 2. “**Explain**” – Gemini provides detailed explanation using step history

At Final Step

- Bot says:
 “You solved it! Amazing work. Here’s your star ”
-

Feature: Mastery Mode (Adaptive Practice Engine)




- Click on **Mastery Mode** from home screen

Step-by-Step Flow:

1. Select Class (10th, 11th, 12th)

- Show all 3 class buttons (10, 11, 12)
- Default focus = **Class 11**

2. Select Subject

- Show icons/tabs for:
 -  Math
 -  Chemistry (disabled for now)
 -  Biology (disabled)

- ⚡ Physics (disabled)

Only **Math** is clickable for now. Others are for visual consistency.

Select Concept / Topic

- Show a **scrollable tile/grid** of concepts under Class 11 Math
 - e.g., **Quadratic Equations, Trigonometry, Algebraic Identities**, etc.
- Each concept tile has a **"Start Practice"** button

Choose Practice Type

After selecting a concept (e.g., Quadratic Equations):

Show this UI:



Practice Mode:

☐ Whiteboard

☐ AI Bot (Typing)



Question Type:

☐ MCQs

☐ Word Problems

- Let student choose *any combination*:
 - e.g., Whiteboard + MCQ
 - or Bot + Word Problem
 - If they want to just click on the right option when using mcqs let them have this option to

5. Start at Easy Difficulty

- AI generates a **Level 1 (Easy)** question from selected concept & type

Gemini Prompt Example:

Generate an easy-level {MCQ or word problem} for the concept: {conceptName}. Use Class 11 NCERT difficulty.

6. Student Solves Step-by-Step

- Using the chosen mode:
 - 🖍️ Whiteboard (with step check, hints, bot explanation)
 - 💬 Typing mode (AI validates step-by-step)

Adaptive Logic:

Student Performance	System Response
2 correct answers in a row	Move to Medium level
3 correct at Medium	Move to Hard level
5 total correct (mixed levels)	Mark concept as Mastered ★
2 mistakes in a row	Pause → Suggest “Revise Concept”

Motivation System

- After concept is mastered:
 - ★ “You’ve mastered this concept!”
 - 🎯 “Next Recommended: [suggest next concept]”

Retry & Relearn Options

- Student can retry incorrect levels anytime
- Option to “Redo Mastery” if they want extra challenge

Developer Notes:


- **Class/Subject/Concept Structure:**

```
{
  "class": "11",
  "subject": "Math",
  "concepts": ["Quadratic Equations", "Logarithms", "Probability", ...]
}
```

- Each concept linked to:
 - 3 difficulty levels
 - 2 formats (MCQ, Word Problem)
 - 2 practice modes (Whiteboard, Bot)
- Use Gemini to generate:
 - Questions based on type + level
 - Progressive difficulty
 - Hint/explanation logic same as step solver

Smart Textbook (MVP – Simulated Page Version)

Access From:

- “ Smart Textbook” sidebar or home page

Step-by-Step Functionality

1. Display a Simulated Textbook Page

Page Content:

- Mimic a page explaining:
 “Quadratic Equations – Introduction”
- Include:
 - Definition of quadratic equations
 - Standard form
 - A short example

- 1 solved step-by-step problem

This page should be in **normal HTML/CSS** (not an actual PDF) to allow selection/highlighting.

2. Text Highlight Feature

- When the student highlights any part of the text:

Show floating pop-up:

 Ask Aristotle

3. Context-Aware Aristotle Bot Appears

On clicking “Ask Aristotle”:

- Open the **Aristotle chat panel**

Gemini receives this prompt:

The student highlighted this from the Class 11 Smart Textbook page: "{highlighted_text}"


The chapter context is: "Quadratic Equations"





The full page content is available for reference.

Please explain this like a teacher in simple steps.

4. Preset Thinking Questions (Optional Section)

At the **top-right or bottom of the page**, include:

 “Think with Aristotle” (preset questions inspired by Khanmigo):

-  Why should I learn this?
-  Where is this used in real life?
-  How is this related to future chapters?
-  Can you make this fun for me?

When clicked, these send Gemini this prompt:

Act like a friendly, curious teacher.

The topic is: "Quadratic Equations"
Student asked: "Why should I learn this?"

Give a motivational, clear, and fun response.

Absolutely, Maheen! Now that we've locked in the name — 🧠💙 **Wise Friend** — here is the **developer-ready, step-by-step functionality** for your **Emotional Support Bot** inside Aristotle.

This will be the **heart** of your product — making students feel *seen, heard, and supported* — not just corrected.

💙 Feature: Wise Friend – Emotional Support Bot

📌 Access From:

- “💙 Talk to Wise Friend” button in main UI

🧭 Step-by-Step Functionality

How It's Triggered

✅ Manual Trigger:

- Student clicks:
“💙 Talk to Wise Friend” (button always visible on screen corner or under help)

✅ Auto Trigger (Smart Detection):

- After:
 - ❌ 3+ wrong answers in a row
 - ⌚ Inactivity for 1+ minute after mistake
 - 🛑 Clicking “I give up” or closing whiteboard abruptly

- System shows:
"Looks like you're having a tough time. Want to talk to your Wise Friend?"
-

Wise Friend Chat UI Opens

- UI is **soft, calm** (light blue or lavender tones)
- Header:
"Hi, I'm Wise Friend. I'm not here to teach — just here for you 💙"

Shows 3 **starter questions**:

- 🙄 I feel stuck
- 😰 I'm scared of failing
- 🧘 I need motivation

-

Student can also just type freely: "I'm tired", "Why am I so dumb?", etc.

Gemini Prompt Structure

Each message sent to Gemini includes emotional + session context:

This student is learning Class 11 Math.

They seem emotionally distressed or unmotivated.

They just said: "{student_message}"

Please reply like a warm, understanding friend or mentor.

Avoid giving academic help.

Focus on encouragement, empathy, and emotional support.

Use simple, human words.

Response Style from Wise Friend

- Responses are:
 - Friendly

- Non-judgmental
- Emotionally validating

Example:

“It’s totally okay to feel tired. You’ve been doing your best. Sometimes the hardest thing is just to keep going — and you are 💙”

Optional Follow-ups

After a message from Wise Friend, suggest gentle actions:

- 🌱 Want to try a 60-sec breathing exercise?
- 📅 Want me to remind you of how far you've come?
- 🧸 Just want to talk more?

If selected:

- Breathing → show GIF or video
 - Reminder → show progress so far
 - Talk → open free chat
-

Student Can Return to Learning

- Show calm message:
“Feel a bit better? Want to get back to learning or stay with me a little longer?”
 - Options:
 - 📅 “Back to Practice”
 - 💬 “Talk a bit more”
-

Data Handling

- Every Wise Friend session is:

- **Private** (not visible to teachers/parents)
- Saved as: "Support Interaction – [Date]"
- Reflected in student's own logs only

Example User Flow Summary

1. Student gets 3 steps wrong in a row
 2. A popup appears:
"Need a break? Wise Friend is here 🧡"
 3. Student opens chat, clicks:
"I'm scared of failing"
 4. Gemini replies warmly, like a mentor:
"That fear is more common than you think. But failing doesn't mean you're not capable — it means you're learning."
 5. Student chooses:
"🌱 Try a breathing exercise"
 6. Returns to practice feeling lighter 🧡
-