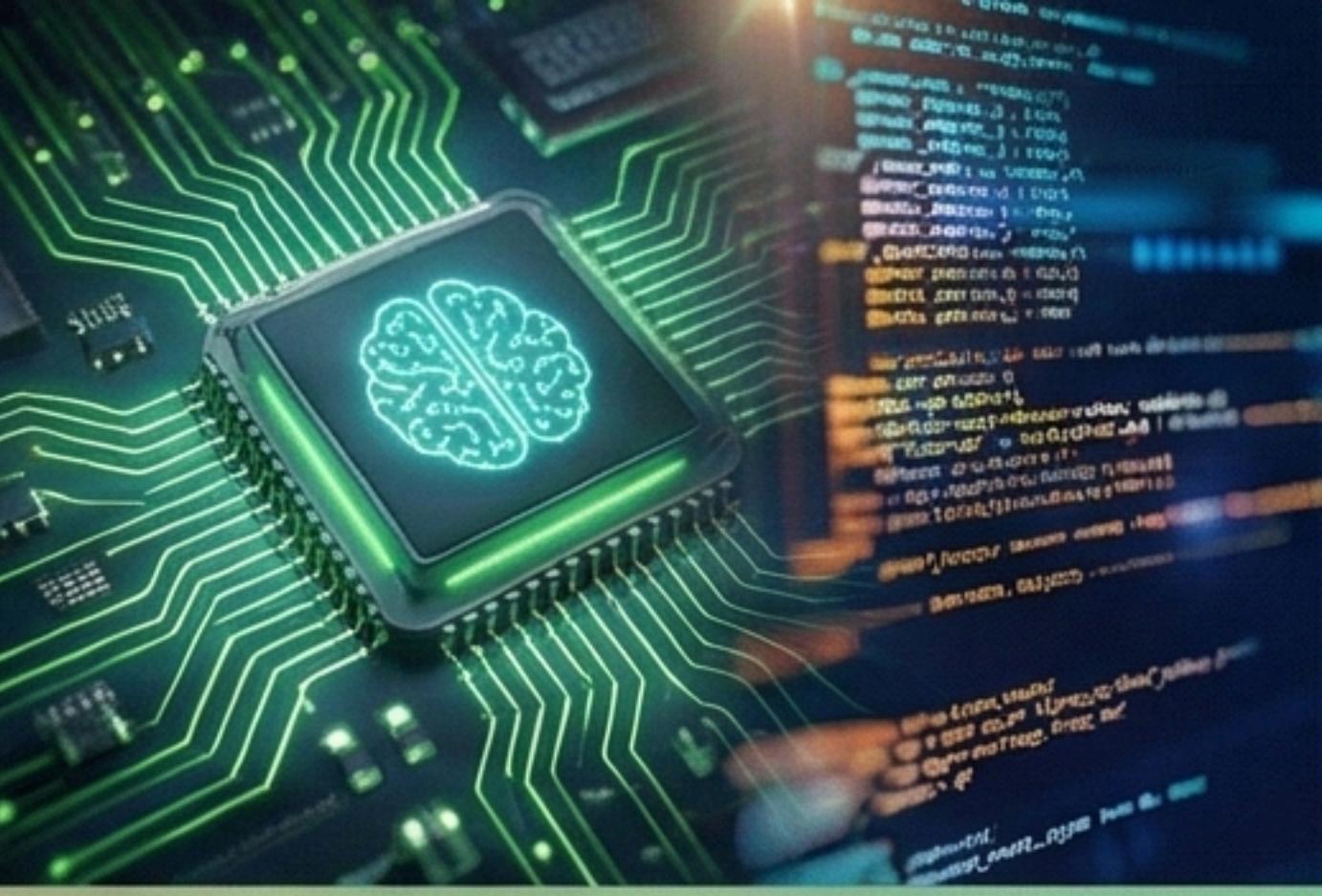# AI in STEM Classes:
From Problem-Solver to Coding Companion

A practical guide to using AI tools to deepen understanding
in Science, Technology, Engineering, and Math.
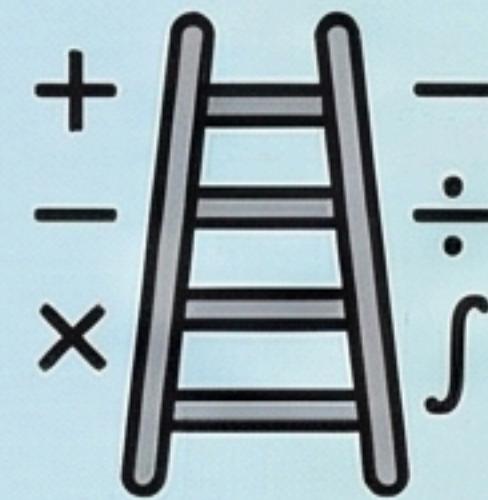
Science & Math: The AI Lab Assistant

Explain & Conceptualize
Use AI to simplify complex theories or get alternative, easier explanations.

Step-by-Step Tutoring
Don't just ask for the answer! Ask for a breakdown of the logic to learn the process.
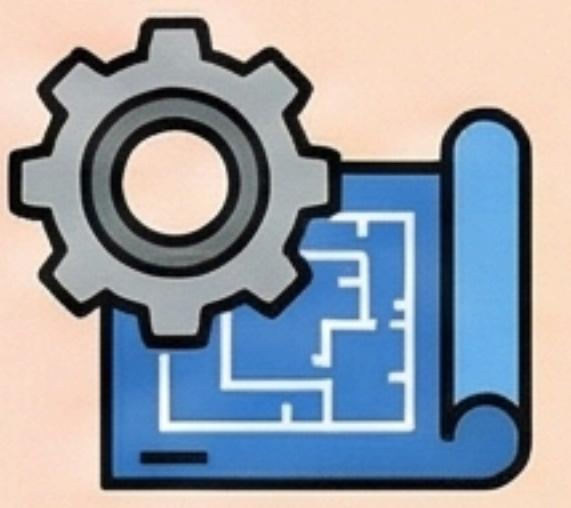
Analyze & Visualize Data
Input datasets to find patterns, calculate stats, or generate code for charts.

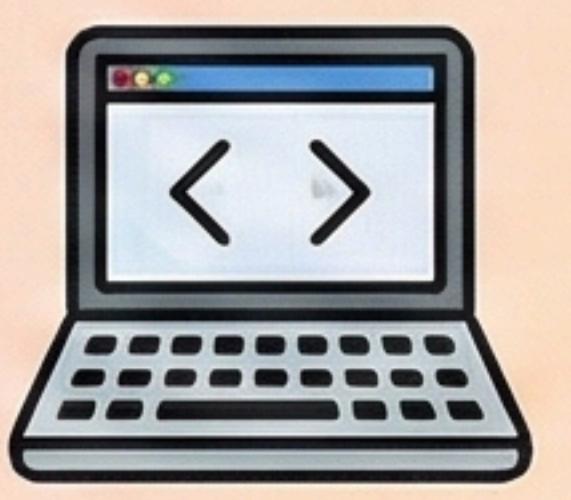**Example Tools:** WolframAlpha, Khanmigo, ChatGPT (Data Analysis).

Tech & Engineering: The Coding Companion

Brainstorm & Design
Generate ideas for projects, robotics **challenges**, or 3D designs based on constraints.

Generate Code Snippets
Describe a function (e.g., "Arduino sensor code") to get a starting block to modify.

Debug & Explain Errors
Paste error messages or broken code to get a plain-language explanation and fix suggestions.

Example Tools: GitHub Copilot, Replit Ghostwriter, ChatGPT/Claude.

⚖️ The Golden Rule: AI as a Tutor, Not a Solver ⚖️

- **Focus on the "How" & "Why":** Understand underlying principles, don't just seek the final answer.
- **Verify Everything:** AI can make errors. Always test code and double-check calculations.
- **Build Foundational Skills:** Use AI to scaffold learning, but ensure you can solve basics on your own.

Discover detailed tutorials for these tools in our Learning Scenarios at smaileproject.github.io!