AI as an Everyday Assistant

AI is here to stay, and students are already using it. As a teacher of mathematics and physics, AI is a useful tool for me – especially when time is short, the tasks are many, and the planning is shaky. Here I want to show a few ways I have used it myself and that I think work in everyday teaching.

Concretizing five minutes before the lesson

You have a plan. You know which topic you are going to cover. But you only have a single example. I wrote:

You are a pedagogical high school mathematics teacher. Give me five real-world examples of composite functions of the form f(g(x)).

Response (all answers shortened): Payment from selling Christmas magazines where your compensation depends on the number of points you have earned, and the points in turn depend on how much you have sold. Another example is the body's insulin response after you eat a certain amount of carbohydrates: when you eat a certain amount of carbohydrates, the blood sugar level rises somewhat, and if the blood sugar rises enough, the body responds by secreting increasing amounts of insulin. The function f(g(x)) then describes how much insulin is secreted for a certain food intake.

These examples are clear enough that I can formulate a few additional ones myself and add them to my planning.

Multiple-choice questions for weekly tests

The online question banks are useful, but sometimes they don't contain what I want. I wrote:

You are a pedagogical high school mathematics teacher. Create 10 well-balanced multiple-choice questions about powers, with varying levels of difficulty. Each question should have exactly six answer alternatives, where common misconceptions are included.

ChatGPT is good at this type of task and can create plausible alternatives that cannot simply be guessed. I needed to edit and correct a couple of options, but it was much faster than starting from scratch. The word *well-balanced* means that the answer alternatives have roughly the same format and reduces the risk that students can guess the correct answer from the phrasing.

Summarizing the board afterward

You don't always have time to create neat summaries. But you have a board full of writing and a mobile phone. I took a photo and wrote:

You are a pedagogical high school mathematics teacher. You have just taught a lesson on solving equations. Write a pedagogical text that follows the examples and structure on the board. If something is missing, fill it in. But do not skip anything that appears there.

The result? An editable version of the explanation ready to be used as repetition in the next lesson or shared with students who were absent. I can also follow up with requests for translations or practice exercises.

Creating varied alternative versions of tests

You have students who need to retake a test, but you want to avoid giving the same questions as before. Or you want two equivalent versions of a test so students cannot glance at their neighbor's work. With a prompt like:

Create new questions about linear functions that match the uploaded originals question by question. Use different contexts and values, but the same type of reasoning as in the originals. Values that are integers should be replaced with new integers, values in fraction form should be replaced with other values in fraction form, etc. Each question should have the same level of difficulty as the original question.

…you can quickly get new material that assesses the same learning objectives without feeling like an exact repetition. It saves time, expands your library of useful questions, and can increase security in assessments.

Generating mathematical reasoning for discussion

When you want students to practice explaining and reasoning, you can ask the AI to provide examples of different student responses – both correct ones and typical mistakes:

Write five different student answers to this problem about powers. Let one be completely correct, two partly incorrect in different ways, and two showing different common misconceptions. Use language similar to how students express themselves.

You can then project the responses or print them out and let students discuss them: Which seems most reasonable? What is correct – and why? In the same way, you can easily create different well-presented versions of essentially the same correct solution.

Formulating exit tickets

You have five minutes left in the lesson and want to capture what students have understood. Ask the AI to quickly create short reflective questions:

Create five short reflection questions (exit tickets) after a lesson on percentages for grade 8. The questions should help students think about what they understood and what was difficult.

Sample answers: *What was most surprising in today's lesson? How would you explain the difference between a growth factor and a percentage increase to a younger friend?*

You can often do this spontaneously and show the questions on the projector. The questions can also serve as an introduction to the next lesson.

Prompt techniques that make a difference

As you learn to write better prompts, you not only get more useful answers – you also save time. Here are five techniques I often use:

Metaprompting*:* You ask the AI to help improve the prompt itself before you use it. *How should I formulate a good prompt for creating a problem-solving task for Math 1c?* When you receive the answer, you edit the prompt and use it in a new conversation (chat).

Context enhancement: You provide the AI with extra information about the situation, the target group, or the context. This makes the response more accurate. *I am a teacher in Math 2c and will explain exponential functions to students in the Sales and Service programme who previously struggled with exponential expressions and powers. Give me five clear examples connected to the programme or everyday life that I can use on the board.*

Roles: You instruct the AI to assume a specific role or professional identity. This increases the chance that the responses fit your purpose. *You are a pedagogical high school mathematics teacher. Describe how you would explain derivatives to a student who has never heard of them.*

Format requirements: You specify the format in which you want the answer, for example a table, bullet list, or code. *Give me a bullet list with five different ways systems of equations are used in real professional contexts (not constructed problems).* Specifying the format often produces better and more focused responses.

Adventure: Very useful on Friday afternoons. You can let students wander the streets of Athens guided by Plato – or anywhere you like. Write a prompt like this one:

You are a text-based adventure story in second person, aimed at high school students who have just started with geometric proofs. The player is in ancient Athens and is guided by the philosopher Plato through an educational adventure. The tone is exploratory, educational, and slightly philosophical. Each scene contains either a geometric problem, a logical reasoning task, or a visual description for the player to think about. Plato asks open questions and asks the student to formulate assumptions or draw conclusions. Keep the language simple and concrete. Present only one question or situation at a time. No modern terms or tools may appear. Use dialogue with Plato and descriptions of environments from ancient Athens.

Focus on the conversation and reflections

The magic often happens in the conversation that follows, not in the first answer. It is not the first question that does the work – it is what you do afterward that determines how useful the answer becomes. *Keep examples 1 and 4. Give three new examples that are linear and everyday-related. Expand and structure the text more clearly. Provide sources for the claims. Is it really true that…*

This is especially important when it comes to students' use of AI. If they use AI incorrectly, they risk producing results without learning anything at all. Consider letting students present their conversations and assess not the chatbot's answers but the students' questions, which reveal more about their knowledge. Explain to students that AI works as an amplifier of their own level. They themselves must understand enough to ask the intelligent questions that help them learn more – not less. Therefore, they should never begin by using AI, but instead bring AI in only when they have gone as far as they can on their own.

If you have a Plus subscription in ChatGPT or a Google account, you can create your own so-called custom GPTs or Gemini Gems. These are pre-prompted versions of ChatGPT or Gemini – assistants with built-in instructions that mean you do not have to write the same thing every time. For example, you can have a pre-prompted assistant that:

- summarizes long texts in a specific way
- acts as a personal study buddy for you or your students and asks them Socratic questions
- helps you write better prompts
- helps students who struggle with correct writing to clean up their texts

Once you have created an assistant, you can access it directly from the app or the web. It always remembers its assignment and is ready to use immediately.

Several of the examples in this article are taken from my book *GPT-handboken* (in Swedish). There is a web site at https://gpt-handboken.se with free assistants and other materials. The book contains both practical tips and assistants for teaching, planning, and learning. It is aimed at teachers who want to use AI in a thoughtful way – not as a shortcut, but as support for better learning. The goal is to make it easy to get started, but also to show how you can develop your own solutions that suit your particular teaching.

AI does not do the work for you. But you do not have to start every lesson from scratch. You do not have to sit alone with every formulation. You still need to edit, verify, and assess. But you get a head start.