

# Ai For Learning - Learn With Ai

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## Learn with AI

Absorbing new materials and applying new knowledge is a challenging task. Chatbots can be your personal tutors.

- Chatbots can be used to learn new topics by providing explanations, generating questions, and offering feedback.
- Chatbots have several advantages, including 24/7 availability, a non-judgmental environment, and adaptability.
- Chatbots can be used to create personalized learning plans and assignments.

Good luck using chatbots for learning.

Examples:

1. **Explanation and Elaboration:** You can ask the chatbot to explain difficult concepts, theories, or principles in simpler language. The bot can break down complex ideas into more digestible chunks.
2. **Supplementing Learning Materials:** The chatbot can provide additional information, insights, or resources about your subject. This can complement your course materials and further broaden your understanding.
3. **Quiz Generation:** As demonstrated earlier, the chatbot can create practice tests and quizzes for you. Regular quizzing is a great way to improve the retention of knowledge. see next page.
4. **Discussing Ideas:** If you're writing a paper or preparing a presentation, the chatbot can serve as a sounding board for your ideas. It can provide feedback, help refine your arguments, or even suggest other perspectives to consider.
5. **Revision:** You can ask the bot to generate a summary of certain topics or to remind you of key points from your lessons. It can help you revise more effectively and efficiently.
6. **Study Schedule:** The chatbot can assist you in creating a study schedule or remind you of your study plans and deadlines.

7. **Debate Partner:** If you're studying a subject that involves different viewpoints or theories, you can use the chatbot as a debate partner. Present your viewpoint, and ask the chatbot to provide counter-arguments or present a different perspective.
8. **Stress Reliever:** Studying can sometimes be stressful. Chatbots can help lighten your mood by telling jokes or interesting facts related to your study, or even just engaging in a light-hearted conversation.
9. **Concept Linking:** You can use the chatbot to understand how different concepts in your subject link together. This will not only reinforce your learning but also help you see the bigger picture.
10. **Studying Tips:** You can ask the chatbot for studying tips. For example, it can advise you on effective note-taking strategies, active reading techniques, or how to stay motivated when studying.

## Ask questions and get clarification

A chatbot can help you to understand complex issues that you encounter during your learning journey.

Here are prompt examples:

<b>Ask for clarifications</b>	
<p>Prompt:</p> <p><b>What are the main benefits and drawbacks of human-centric design? Give 2 bullets for each with max 50 words.</b></p> <p>(remark: obviously 5 or more bullets result in better understanding)</p>	<p>ChatGPT 4:</p> <p>Benefits of Human-Centric Design:</p> <ul style="list-style-type: none"> <li>• <b>Enhanced User Satisfaction:</b> By focusing on users' needs, preferences, and constraints, human-centric design can significantly improve user satisfaction and product usefulness, leading to increased customer retention and loyalty.</li> <li>• <b>Improved Accessibility:</b> A human-centric approach ensures that a broad range of user abilities are considered, enhancing the product's accessibility, usability, and inclusivity for diverse user groups.</li> </ul> <p>Drawbacks of Human-Centric Design:</p> <ul style="list-style-type: none"> <li>• <b>Time and Resource Intensive:</b> Understanding user behavior and needs</li> </ul>



by F. Reichert using MidJourney  
 Prompt "human-centric design"

can be time-consuming and expensive, involving interviews, observations, prototyping, testing, and iterating, which may strain resources, especially in smaller companies.

- **Risk of Over-Specialization:** A focus on specific user needs might lead to overspecialized products that fail to address broader market needs or adapt to changing user behaviors and technological advancements.

Prompt:

**Explain the concept of gravity to a physics university student. use max 150 words**



by F. Reichert using MidJourney  
 Prompt "gravity, minimalistic, watercolor style"

ChatGPT 4:

Gravity, as described by Einstein's General Theory of Relativity, is not just a force but a curvature of space-time caused by mass and energy. Objects moving within this curved space-time follow paths called geodesics, much like how a ball follows a curved path down a funnel. This gives the impression of an attractive force between masses. This is a departure from Newton's gravitational law, which posited gravity as a force acting instantaneously over a distance. The model of gravity as a geometric property also explains phenomena like the gravitational lensing of light and the slight deviation of Mercury's orbit, which couldn't be explained by Newton's law. However, the quantum mechanical description of gravity is still an open question in physics.

Prompt:

**Explain in max 200 words. how does CO2**

BING:

Carbon dioxide (CO<sub>2</sub>) is one of the greenhouse gases that contribute to global warming. When

## contribute to global warming



by F. Reichert using MidJourney

Prompt "global warming"

sunlight reaches Earth, the surface absorbs some of the light's energy and reradiates it as infrared waves. These infrared waves travel up into the atmosphere and will escape back into space if unimpeded. However, CO<sub>2</sub> and other greenhouse gases absorb infrared energy and re-emit it back in all directions. About half of that energy goes out into space, and about half of it returns to Earth as heat, contributing to the 'greenhouse effect'. Extra CO<sub>2</sub> in the atmosphere increases the greenhouse effect, causing the planet to become warmer than it would be naturally. This increase in the Earth's temperature is called global warming.

## Your personal tutor

AI can function as your personal tutor, facilitating a highly personalized, flexible, and effective learning experience and creating personal learning programs and timelines for you [2].

How much do you know about a certain topic? This could clarify your need for more studies.

**Prompt: Can you assess my knowledge in computer science by asking three questions? Give me feedback on my competence level.**

ChatGPT:

Absolutely, I would be glad to ask you a few questions to assess your knowledge in computer science. Please remember that this will be a very basic assessment and might not capture your full understanding and proficiency in the field.

Question 1: What is the difference between a stack and a queue in data structures?

Question 2: Can you explain the concept of polymorphism in object-oriented programming?

Question 3: In the context of databases, what does ACID stand for, and why is it important?

Here is an example of using ChatGPT as a personal teacher. First, you need to tell the AI that it is a teacher and in which subject.

**"You are now my professional math teacher. Give me assignments in basic algebra and fractions."**

The result of this prompt is entry-level assignments:

**Task 1: Algebra Basics** Start by revising the concept of variables, constants, and expressions. Then, attempt to solve the following algebraic equations:

1.  $2x + 3 = 11$
2.  $4y - 7 = 13$
3.  $5z + 4 = 4z + 11$  Take note of the steps you used to arrive at the solutions.

**Task 2: Fractions** Review the principles of adding, subtracting, multiplying, and dividing fractions. Then, solve these problems:

1.  $2/3 + 5/6$
2.  $3/4 - 2/8$
3.  $7/8 * 3/4$
4.  $8/9 \div 2/3$

You can always ask for harder tasks, or tasks in different formats.

For the solution of ask:

**"show me how to solve:  $5z + 4 = 4z + 11$ "**

ChatGPT: To solve the equation  $5z + 4 = 4z + 11$ , you can follow these steps:

Subtract  $4z$  from both sides of the equation to get all the  $z$  terms on one side and the constants on the other side. This gives you:

$$5z - 4z = 11 - 4$$

Simplify both sides:

$$z = 7$$

So, the solution to the equation  $5z + 4 = 4z + 11$  is  $z = 7$ .

## Study Schedule

You can have AI create learning plans set over a given timespan with clear goals on what to learn during the time period. For instance, you can write a prompt saying:

**"I want to learn Spanish. Can you create a 10-week study plan that will help me achieve this goal. Can you please help me by:**

1. **Give me an introduction to the Spanish language and a place to begin.**
2. **Give me assignments based on the progress I make."**

The response given by the AI was a complete instruction and guide on how to learn Spanish as a beginner.

Sure, I can certainly help you with a study plan to learn Spanish. Here's an introductory plan that will guide you through the first 10 weeks of learning. The plan is somewhat intensive, aiming for about an hour of study per day. Feel free to adjust to suit your needs and pace.

### **Weeks 1-2: Basics and Greetings**

1. *Introduction:* Begin with a general introduction to the Spanish language, such as its phonetics, alphabet, and number system. Some good resources include Duolingo, Rosetta Stone, or SpanishDict.
2. *Vocabulary:* Start building your vocabulary with common greetings, introductions, and basic phrases (e.g., "Hello", "Goodbye", "Thank you", "Please").
3. *Assignment:* Practice your new vocabulary in real-life scenarios as much as possible, even if it's just speaking to yourself or using a language exchange app like Tandem or HelloTalk.

### **Weeks 3-4: Basic Grammar and Pronouns**

1. *Grammar:* Begin learning about basic Spanish grammar. Start with subject pronouns ("yo", "tú", "él/ella/usted", "nosotros", "vosotros", "ellos/ellas/ustedes"), the verb "ser" (to be), and present tense verb conjugations.
2. *Vocabulary:* Expand your vocabulary to include basic objects and food items.
3. *Assignment:* Try constructing simple sentences in Spanish, and practice speaking them out loud. Use your new vocabulary to describe things around you.

### **Weeks 5-6: More Complex Grammar and Sentence Construction**

1. *Grammar:* Dive into more complex grammar. Explore the use of the verb "estar" (to be) and the differences between "ser" and "estar". Learn about adjectives and how they agree in gender and number with the nouns they describe.
2. *Vocabulary:* Learn vocabulary related to the family, hobbies, and everyday activities.
3. *Assignment:* Write a paragraph introducing yourself, your family, and your hobbies. Practice speaking it out loud.

### **Weeks 7-8: Past Tense and Vocabulary Expansion**

1. *Grammar:* Introduce past tense, starting with "preterite" tense. Learn the basic rules and conjugations.
2. *Vocabulary:* Focus on vocabulary related to travel, work, and school.
3. *Assignment:* Write a story in Spanish using past tense, such as what you did last weekend or your most recent vacation.

### **Weeks 9-10: Future Tense and Conversational Practice**

1. *Grammar:* Start learning about future tense, both the informal future (ir + a + infinitive) and the formal future tense.

2. *Vocabulary*: Learn vocabulary that relates to your own life and interests. This could be more specific work vocabulary, hobby-related terms, etc.
3. *Assignment*: Start having simple conversations in Spanish. This could be with a language partner, tutor, or through a language exchange app.

Throughout these 10 weeks, it would be beneficial to immerse yourself in the language as much as possible. This can be done by listening to Spanish music, watching Spanish TV shows or movies, reading Spanish newspapers or books, and even changing your phone or computer language to Spanish. This will help you get used to the sounds and rhythm of the language, and will also introduce you to more informal or colloquial language. Remember, consistency is key, so try to practice a little every day. Good luck with your language learning journey!

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## References

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