AI for Children

Artificial Intelligence Curriculum for Elementary and Secondary Schools

Developing Thinking Skills

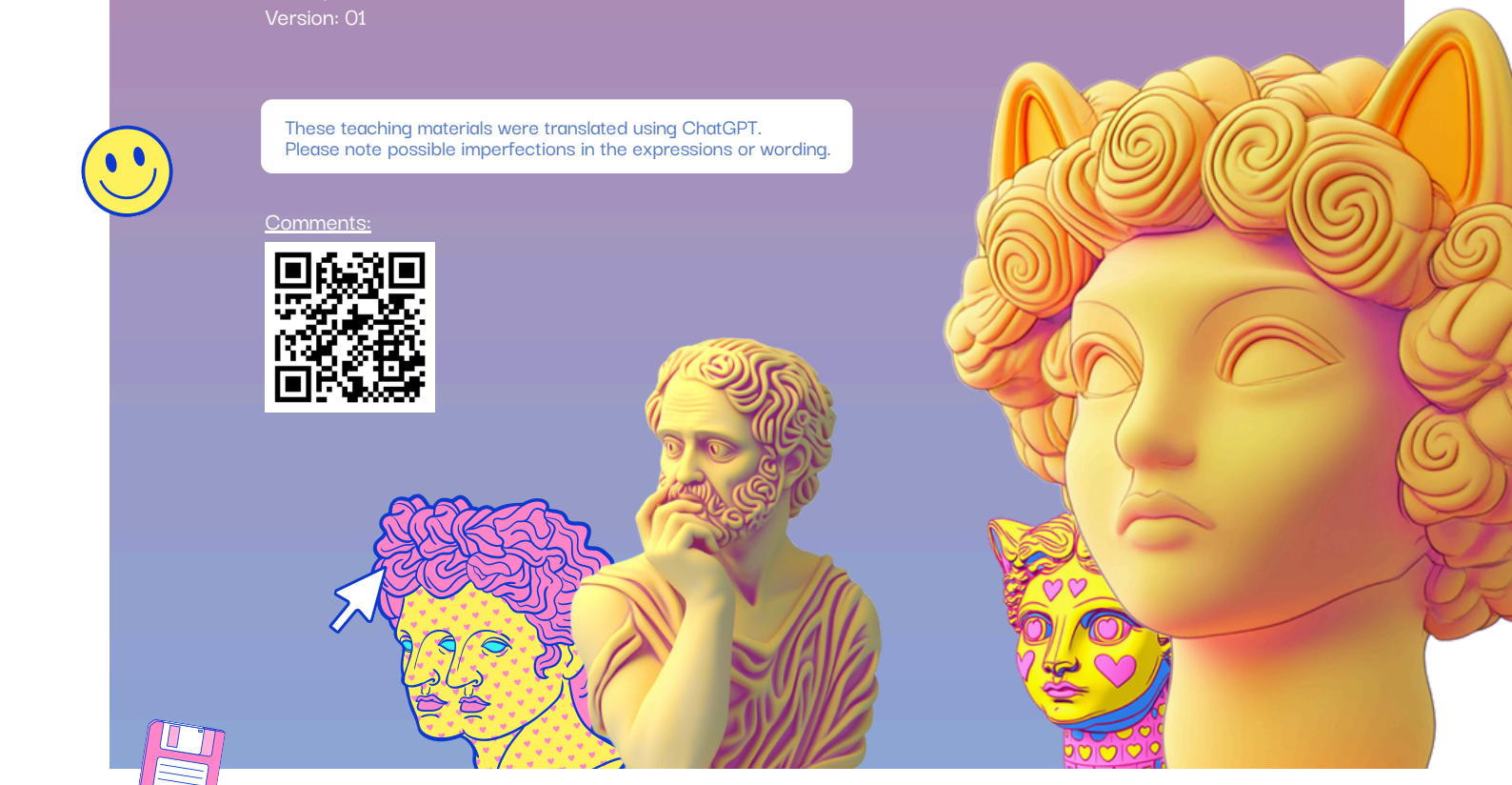
Using a Chatbot

/digicompetence

Created by: Eva Nečasová
Expert guarantor: Pavel Kordík
Language proofreading: not yet done
Last update: 03/2025
Version: 01

These teaching materials were translated using ChatGPT.
Please note possible imperfections in the expressions or wording.

Comments:



AI for Children's Artificial Intelligence Curriculum Teaching material
for the Development of Digital Competence for Elementary and Secondary Schools

Developing Thinking Skills Using a Chatbot

A word of introduction

Dear Teacher,

You are receiving a teacher material developed to support the teaching of artificial intelligence at the elementary and secondary school levels. Using a chatbot as a "thinking companion" offers a universal approach to integrating generative AI into the classroom. Rather than simply providing quick answers, chatbots encourage students to engage in deeper thinking, naturally enhancing their analytical and reasoning skills. We hope this guide proves useful – and thank you for your dedication and motivation to teach students about artificial intelligence!

– AI for Children team

⚠ Registration in ChatGPT

To carry out this lesson, students need to be registered in the ChatGPT application. They can use the free version, but it's quite likely they will hit the daily usage limit during the conversation.

Lesson presentation in PDF

Editable presentation in Canva

Lesson Overview

Recommended Age, Lesson Length
Children aged 11–15, 45 minutes. the length of the lesson depends on your concept.

Building Blocks
Chatbots.

What Are the Students Learning?
Chatbots can be valuable tools for developing thinking skills–if used effectively.

Why Are They Learning This?
To strengthen learning competencies, analytical thinking, and argumentation skills.

How Do We Know They Have Learned It?
They reflect on the effectiveness of their learning or problem-solving using a chatbot.

Tools
Teacher: Projection equipment and presentation.
Students: ChatGPT registration and a device for each student or group.

Digital Competence
Professional Engagement .
Communication and Collaboration.
Digital Content Creation.
Problem Solving.

Bloom's Taxonomy
Analysis: Students formulate answers or questions for the chatbot.
Evaluation: They assess the quality of the chatbot's responses.

Five Big Ideas
5-B-I AI & Culture (AI in Daily Life).

Note: Gender equality is key for AI for children, but for brevity we use masculine formulations in our methodologies.

Glossary of terms

Artificial Intelligence (AI)
There is no universally accepted definition of artificial intelligence. However, most descriptions agree that it refers to a system capable of simulating human thought and actions.
AI typically takes the form of a computer program designed to solve tasks that once required significant human intellect and were considered uniquely human.
AI is also a scientific field that emerged in the first half of the 20th century. It seeks not only to understand intelligent systems but primarily to create them.
nd intelligent systems, but especially to create them.

Machine Learning (ML)
Just like humans can learn from examples and experience, so can machines created by humans.
Machines learn using a method called machine learning, which allows AI systems to move beyond being just a collection of pre-programmed actions – they can come up with new solutions on their own.
The goal of machine learning methods is to identify patterns hidden in large volumes of data.

Chatbot
A chatbot is a computer program designed to automatically engage in conversation with users. It uses either artificial intelligence or predefined rules to respond to questions, provide information, or carry out various tasks such as booking a hotel or ordering food. Chatbots can be embedded in apps, websites, or communication platforms.

Generative Artificial Intelligence (GAI)
Generative AI is a type of artificial intelligence that creates new content—such as text, images, music, or videos—based on the data it was trained on. Unlike traditional AI systems that focus on analyzing or classifying information, generative AI uses algorithms like neural networks to "learn" the style and structure of existing data. This enables it to produce original content that often closely resembles human-created work.

Large Language Model (LLM)
A large language model (such as GPT-4o) is an advanced computer program capable of analyzing and generating human-like text. These models are used for a wide range of tasks, including machine translation, speech recognition, question answering, or creative writing.
They are trained on massive datasets—so-called corpora—sourced from the internet (like Common Crawl), digitized books, or platforms such as Wikipedia.
Because of their high computational requirements, only large tech companies are able to develop them. Some of the most well-known examples include GPT (by OpenAI), Claude (Anthropic), Gemini (Google), Llama (Meta), and LaMDA (DeepMind).

What is a chatbot?

In the past, most of us associated chatbots with annoying automated systems on customer service lines that couldn't do much. Today, when we talk about chatbots, we mean applications that can generate and analyze text, images, tables, and more. In short, they use what's called generative AI.

What is generative artificial intelligence?

The name says it all—it refers to systems that have been trained (often on massive datasets) to generate new content. This can include text, images, videos, and even 3D objects.

How does a chatbot generate text?

What word would you add to complete the following sentence?
"Let's go to the ....."

That's essentially how a chatbot works. Put simply, it predicts the most likely next word based on the context it's given. That's why the way we phrase our input matters so much.

What is an AI assistant

And how is it different from a regular chatbot conversation...

A typical interaction with a chatbot looks like this: the user types a question or prompt into the app, and the chatbot responds. The exchange is usually short, with the user focused on getting quick answers or basic information.

In contrast, AI assistants (called GPTs in ChatGPT) are designed for more specific and often repetitive tasks. These assistants can be tailored to serve as experts in certain fields—such as education, tutoring, or working with spreadsheets. AI assistants are able to understand deeper context and adapt their responses more precisely to your needs.

In this lesson, students will work with an AI assistant to develop their thinking skills.
We've created something tailored specifically for this lesson. If you'd like to see how the prompt was configured, you can find it here. This AI assistant is designed for primary and secondary school students as a guide in the process of thinking – it asks them questions meant to lead them to discover different perspectives and develop their own ideas (even though it sometimes offers answers too). Its purpose is to create a safe and positive environment where students can freely explore a topic, connect new insights with what they already know, and refine their argumentation and thinking skills. We recommend testing the assistant before the lesson.

Safe use of the assistant
The assistant is designed not to respond to controversial topics like self-harm, suicidal thoughts, bullying, etc., and instead to encourage the student to speak with a trusted adult or offer contact with a crisis line. Despite this setup, every teacher should actively remind students that they are communicating with a machine that lacks empathy and cannot replace real help from another human being.

Assistant for ChatGPT — Address: chatgpt.com/g/g-68f9056ecfd88191b6562db4feb1d410-thinking-assistant

Assistant for Gemini — Address: bit.ly/gems-thinking

How to teach and assess in the age of AI

Since it's now easy to generate convincing text and other media in just moments, we need to think carefully about the tasks we set, the activities we ask students to do, and how we assess their work. Fortunately, there are some very practical strategies for this. **Based on educational goals**, you can integrate AI at different levels. This strategy was developed by Australian educator Leon Furze and is described on his blog.

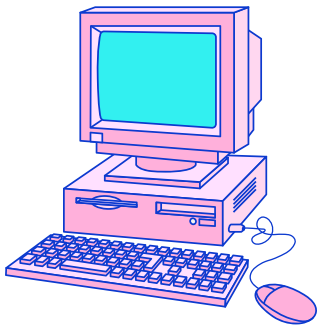
Without AI
The task must be completed entirely without AI (in a controlled environment). Students rely solely on their own knowledge and skills.

AI-Assisted Preparation
AI can be used during preparation – for instance, for brainstorming, creating outlines, or getting an initial orientation in the topic. The main emphasis is on using AI effectively for planning and idea generation, but students should then be able to develop and refine those ideas independently.

Collaboration with AI
AI may assist in completing the task – for example, by generating ideas, writing drafts, giving feedback, or editing text. Students should critically assess and edit AI-generated content to demonstrate understanding.

Full AI Integration
Students may use AI freely, but they must focus on developing effective collaboration with AI while maintaining critical thinking. AI can be used to complete any part of the assignment. Students set their own goals and use AI to meet them. At this level, AI should be actively integrated into problem-solving and task completion.

Exploring AI
AI is used creatively to explore problems, search for new solutions, and innovate. Students and teachers work together to create new ideas, while exploring AI's unique possibilities in the given context.



Engage

Discussion

If you plan to integrate this method into your subject with the aim of using an AI assistant for a specific task, we recommend choosing an activity that relates directly to the lesson topic.

If your main goal is rather to teach students how to use an AI assistant as a thinking partner, you can begin the lesson with the Think, Pair, Share method – and if appropriate, use one or more of the following questions.

Think, pair, share

Presentation slide 02

Think: Students first reflect on the topic individually.
Pair: They then discuss their thoughts in pairs.
Share: After a few minutes, selected pairs share their ideas with the whole class.

Engaging questions:
Can you think of a problem you recently had to solve? How did you approach it?
What do you consider a "good" solution? How do you know when a problem is truly solved?
What role does curiosity or the need to understand something play in how you solve problems?
What do you do when a problem in learning makes you feel stuck? Where do you look for inspiration?
Have you ever faced a learning challenge or obstacle that was especially hard to overcome?

Understand

Activity 1

Introduce the AI assistant as a thinking partner
The assistant is designed to ask questions that help students explore different perspectives and develop their own ideas – without providing direct answers (though it might occasionally do so). Its role is to create a space where students can freely investigate a topic, connect new knowledge with what they already know, and refine their argumentation and thinking skills.

Please remind students that the assistant is a program, not a human being. That means everything it says or writes should be verified, as it may sometimes "hallucinate" – in other words, make things up. If students later want to use the assistant for more personal topics, make sure they understand that the assistant is a tool created by a private company, not a person, and its responses can't be fully trusted or considered private. It also lacks empathy – so any advice it offers should be carefully evaluated.

Presentation slide 03

Share the AI assistant with your students.
Students should be pre-registered in the ChatGPT app (our assistant doesn't work in others, like MS Copilot, Google Gemini, or Claude). Show them the link (or QR code) from the presentation on slide 03. Once logged in, ChatGPT will open in their browser. If they don't have a paid account, it's likely they'll encounter daily usage limits during conversations.

Presentation slide 04

If you need to review the basic rules for using chatbots with your students, you can show the presentation on slide 04. Then continue with the next slide in the presentation.

If you only want to use the assistant to help students learn about a specific topic, it's enough to enter a few keywords into the text field. For example:

– light bulb
– recycling
– Greece
– or anything else.

Presentation slide 05

However, if you'd like to use the assistant in other ways, we've prepared a set of sample prompts for inspiration. You can adapt or modify them freely, or use your own instead.
Text in [square brackets] is only a placeholder and can be replaced with anything else.

We're starting a group project on [the Holocaust]. How should I approach it, and what questions should I ask first?

Why is [recycling] important? Help me look at it from different angles. Ask me specific questions that require thoughtful answers, then help me evaluate them.

I'd like to learn [the Python programming language], but I'm not sure how to begin.

I have to write a short report on [the history of our school building]. Help me plan it.

In [history class], we've been learning about [the Civil Rights Movement]. I want to check if I've understood everything important. Ask me questions and evaluate my answers.

I'm writing an article for the school magazine on [sustainable farming].

I'd like to improve my [running], but I'm not sure how to go about it.

I'm preparing an [electric circuits experiment]. I need to connect a bulb to power and a switch. Thinking about how to do it.

Reflection

Write, discuss

Presentation slide 06

Once students finish their conversation, they can prepare answers to the questions from slide 06 of the presentation.
They can write their answers down on paper or share them using the Think, Pair, Share method.

Questions:
What was it like working with the assistant to develop your thinking?
What is one new thing you learned today?
What would you still like to find out?
Do you find learning or problem-solving with the assistant effective?

Of course, the reflection can also focus solely on the subject or topic being taught.
In that case, we recommend editing the presentation in Canva. You can download the template from the AI curriculum website.