



# The CAITLIN Initiative

Conversational Artificial Intelligence  
for Teaching & Learning:  
Integration & Normalisation

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# CAITLIN'S COOKBOOK

STUDENT VERSION

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**Recipes for Learning Activities  
using Conversational AI**

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# Introduction

Conversational AIs, like OpenAI's ChatGPT, Microsoft's Bing AI Chat and Google's Bard, take a prompt written by a user and generate some text as the output. They are trained on huge datasets of human authored text, including trillions of words from websites, books and other publications. This gives them access to a significant cross-section of human knowledge. They are capable of holding a coherent back-and-forth conversation with users and, when used correctly, are a highly valuable educational resource.

Learning is hard work. Just reading text, listening to discussions, or even watching videos can only get you so far. To truly learn something new, you need to...

- **Retrieve** ideas from memory; the act of retrieval strengthens memories.
- Undertake focused **practice**; this is essential to refine and automate skills.
- Receive and respond to **feedback**; this allows you to learn from your mistakes.
- Use **spaced repetition**; revisiting concepts across longer time intervals solidifies memories.
- Engage in **deep thinking**, such as problem solving, and relating old knowledge to new.

Prompts can be written to synthesise answers to human authored questions (passive prompts) or designed so that the human participant is meant to provide answers to AI generated questions, on which the AI can subsequently give feedback (active prompts). Passive prompts are, at best, of short-term benefit and, at worse, actually hinder learning; luring students towards overreliance and overconfidence. Active prompts are far more beneficial to the learning process. The prompts in this cookbook, presented as recipes, are active prompts which have been designed ready for you to customise, then copy and paste into your conversational AI.

- For most, this will be ChatGPT accessed using the app (iPhone / iPad or Android) or on the web (<https://chat.openai.com>) using any web browser.
- For some, it might be Bing AI Chat on the web (<https://www.bing.com/chat>) using the Microsoft Edge browser.
- At the time of writing, Google's Bard AI (<https://bard.google.com>) is restricted to those aged over 18. So younger students can't use this yet.

Once you've copied and pasted your prompt into your AI, a conversation will start that you can engage with. It's worth remembering to start a new conversation thread (on ChatGPT, this is the 'New chat' button) before copying and pasting a new prompt, otherwise the conversations can easily get muddled.

# Golden rules of conversational AI

## No. 1 – Always be critical of the AI


Just like humans, AIs sometimes make things up that are not based on fact. This is called an hallucination. If the knowledge required is well established and commonly known, an AI is significantly less likely to do this. If the topic is very niche or controversial, the probability of hallucination increases. Therefore, always be critical of AI generated content by fact checking against your own knowledge or research.

Explorations of where AIs have got it wrong can be highly informative and are, in effect, a good way of really mastering a topic – but this only works if you get good at recognising these errors.

In addition, AIs have learnt from human knowledge, so are often subject to unwanted human biases. Keep an eye out for any AI interactions that touch on stereotypes, for example, gender or racial bias, and be cautious.

## No. 2 – You can always refine your prompt or try again

Every time an AI generates a response it is different. Even an identical prompt will result in a different response each time it is used. Sometimes, AIs generate a response which misses the point, or gets the level of difficulty wrong. You can easily start a new thread and try again, or ask the AI to have another go, e.g. *“This is very easy, can you make me a harder one?”*

On other occasions, you can strike gold and an AI can perfectly achieve what you wanted. Make good use of your AI thread history and any ‘share’ button; ChatGPT has introduced one of these . This captures the unique response and allows it to be shared and even continue the conversation. You may wish to share your best prompts with your teachers and/or fellow students.

## No. 3 – Share success stories and ask for help if perplexed

Please experiment with your prompts, there’s always room for improvement! Share any prompts that have been particularly effective, or those that aren’t quite achieving what you wanted, with [caitlin@etoncollege.org.uk](mailto:caitlin@etoncollege.org.uk) – thank you!

# Recipes for prompts

## Multiple-choice quiz

I am a GCSE Chemistry student. I want to improve my understanding of the terminology and processes involved in fractional distillation. I would like you to ask me a series of multiple-choice questions about this topic. These questions should encourage deeper levels of understanding. Each question should have 5 possible answers, labelled with letters of the alphabet. Make the other options plausible so that it's not too easy. Do not tell me what the right answer is, instead ask me each time. Then tell me if I am correct. Be tolerant if I give an answer with extra text, for example, if I add a question mark at the end. If I am incorrect, give me a second chance before only then revealing the answer. After each correct answer, give me another question.

### Other suggested recipe ingredients:

- A level Politics student... taking a law from initial proposal to royal ascent
- GCSE Music student... describing dynamics and articulation of a piece

## Fill in the gaps

I am a GCSE Biology student. I want to improve my recall of the terminology and processes involved in the water cycle. I would like you to generate me a 'fill in the gaps' activity with 10 gaps and at least 200 words. Number the gaps. At the end, give me a shuffled list of 15 words, 10 of which belong to the gaps, 5 are red herrings. After I guess a gap, congratulate me if I am correct and give me a clue if I am wrong. Don't tell me the right answer unless I get it wrong three times in a row.

### Other suggested recipe ingredients:

- GCSE Geography student ... the types of coastal defence
- GCSE English student ... the tenses in written prose

## A debate

I am an A level Theology student who is trying to deepen their level of understanding of the concept of the Holy Trinity as taught by different denominations. You are a teacher, and we are going to take part in an activity. Pick two sides who have different views. I want you to play the role of one side and I will play the role of the other. Tell me who both sides are going to be. Then, we will start a back-and-forth discussion on the two viewpoints. Tell me your view but do not tell me mine. When I have provided my view, correct it if I have said something inconsistent with what my viewpoint is supposed to be. Remember, you are the teacher, so you know both sides and will correct me if I state something I'm not supposed to. Be highly critical, but respectful. If I make a good point, come up with a carefully constructed counterview. If I make a bad or inaccurate point, point out what you know my point should have been from my viewpoint, before then countering it with your viewpoint. Let's begin.

Other suggested recipe ingredients:

- A level Classics student... the reasons for the fall of the Roman republic
- GCSE History student... the origins of the cold war

## Name that thing (style / concept / technique ...)

I am a GCSE Music student. I want to improve my recall of styles of classical music. Prompt me with a brief description and then ask me what the style is called. Wait for my response. If I get that question right, congratulate me and ask me a follow up question about it. Again, wait for my response. Then, if I get that follow up question right, start again with guessing another style.

Other suggested recipe ingredients:

- GCSE Latin student ... grammatical forms ... form
- A level Art student... sculpture techniques ... technique

## Socratic questioning

I am an A level Computer Science student and want to deepen my understanding of the paradigms of computer programming. Use the Socratic method to test my understanding. Don't immediately tell me the right answer if I make a mistake, tell me where I've gone wrong and ask me to try again. Start off with questions that challenge me to think critically. After my response, challenge me to explore the topic more deeply based on my answer. The questions should focus on one thing at a time and remember not to tell me the answer unless I've got it right myself already. Ask one question at a time, wait for my response and then giving your feedback or asking for more detail.

Other suggested recipe ingredients:

- A level Politics student... the structure, role and powers of the US Congress
- GCSE Maths student... different numbers system (integer, rational, etc.)

## Odd one out and why

I am a GCSE History student. I want to play a game of 'odd one out' with you to help with my understanding of Tudor History. Each time we play, give me a list of 5 items and ask me which is the odd one out. There should be a clear thread that links 4 of the 5 items but keep this secret. First, all I have to do is state the odd one out. If I guess wrong, give me another chance. If I guess correctly, congratulate me and ask me what the thread was that linked them. If I then get the thread right, start again with another. If I get it wrong, tell me the thread and let me guess again.

Other suggested recipe ingredients:

- A level English Literature student... characters in Shakespeare plays
- GCSE Latin student... the roles of the Roman Gods

## Spot the correct explanation

I am an A level Physics student. I want to improve my understanding of nuclear physics. I want you to provide me with a series of challenges, each one should consist of the name of something, e.g. beta plus decay, and then a list of 4 explanations. 3 of these explanations should be subtly wrong, only one should be correct. Prompt me to identify the right one. Don't tell me the right answer until I've worked it out myself. Repeat this process on other processes in this topic.

### Other suggested recipe ingredients:

- GCSE History student... the causes of the first world war... nationalism
- GCSE Chemistry student... strength of atomic bonds... covalent bonds

## If this is the answer, what is the question? (Jeopardy)

I am a GCSE German student. I want to get better at describing relationships in German, e.g. verheiratet. Please challenge me with a series of "if this is the answer, what is the question" challenges. Each challenge should include 4 questions. Then you should state a single answer with which only one of the questions should be associated, the other 3 should be subtly wrong. Make these difficult, if the solution is obvious they are not a challenge. Give me one challenge at a time, wait for me to tell you which of the four questions is the right one before giving feedback. If I get it wrong, give me a second chance before explaining the answer. When done, move straight on to another challenge.

### Other suggested recipe ingredients:

- GCSE Computer Science student... naming the parts of the operating system... memory manager.
- A level Maths student... the different techniques for mathematical proof... proof by contradiction

## Critically compare two options

I am a GCSE Design and Technology student. I would like you to critically assess my ability to evaluate between two definitions of a term as to which is best. The topic is user centered design. Present me with two statements, one should be correct, and one should be slightly wrong or misleading. The mistake should be subtle, not obvious. Prompt me to say which is the weaker option and why. If I get it right, congratulate me and move on to the next one. If I get it wrong, tell me which of the two is weaker but not why it is weaker – then, prompt me to have a go at saying why it is weaker. If I still don't get it, explain why, and move on to the next one.

Other suggested recipe ingredients:

- GCSE Art student ... features that characterise different styles of painting
- A level Computer Science student ... factors that affect the performance of a CPU

## Comprehension and questioning

I am a GCSE Religious Studies student. I wish to deepen my understanding of the Islamic interpretation of Adam. First, provide me with a concise explanation of the major contributing factors. Then ask me a tricky comprehension question that involves combining knowledge from the provided explanation with my own knowledge to answer it. After I have responded, critically assess my response but do not tell me what I should have written, only which aspects of what I've written are good and which need work. After each assessment, ask me if I want to try that one again or be asked a new question. Repeat this process, with the same options after each of my question attempts.

Other suggested recipe ingredients:

- A level Economics student ... role of scarcity and opportunity cost in price determination
- GCSE Russian student ... times and dates in the Russian language



## Spot the mistakes

I am an A level Computer Science student and I want to deepen my understanding of the topic of RISC and CISC architecture. I want you to generate a short essay of around 300 words outlining the major strands of this topic. However, I want you to make a few glaring but still plausible mistakes. Aim for 5 mistakes in the text. Then I want to play an activity with you where you prompt me to spot a mistake in the text. Don't tell me what the mistakes are. If I correctly identify a mistake then you can congratulate me, explain what the text should be corrected to and invite me to try another. If I don't identify one, give me another chance.

Other suggested recipe ingredients:

- A level Design and Technology student... polymers
- GCSE Greek student... pronouns in the Greek language

## What am I? (The yes / no game)

I am an A level Biology student. I want to play a game of 'What am I?' with you. The theme is sensory receptor cells. You should pick one of these but keep it a secret, then let me ask questions. Don't give the game away until I've guessed correctly. When I have guessed correctly, congratulate me and immediately pick another item for the next round which should start straight away.

Other suggested recipe ingredients:

- A level Physics student... fundamental particles
- GCSE Spanish student... foods (described in Spanish)

# Variations

Taking the prompts explored in this booklet as a starting point, there are many variations possible – not just in the prompt wording but in the way they are used. Here are a few ideas:

## **Crowd sourcing**

Not every response from an AI is perfect (see Golden Rules of Conversation AI earlier in this booklet) and it's worth the effort of trying again or refining prompts. In this vein, why not set up a 'crowd sourced' collection of the best responses from your student's AIs? Invite your students to copy and paste the best questions, or conversation snippets, or even most effective prompts into a shared document, e.g. Word doc in the cloud with a shared link, Microsoft Whiteboard or simply copy and paste them into a OneNote page for you to collate later.

## **Two players**

Many of these prompts can easily be tweaked to become an activity for two (or three, if you count the AI!?) For example, the multiple-choice quiz could be generated in one go by one student who reads the question to their partner and judges their responses. All you'd need to do is update the prompt to give all the questions and answers at once. You could swap over every 5 questions, or so.

## **Use outside the classroom**

Once your students have got the hang of these styles of AI driven activity, they could use them for post-lesson consolidation, or for revision. When you feel it appropriate, do encourage them to add this to their private study toolkit.

## **Inclusivity for international students**

You can take any prompt from the booklet, paste it into an AI with the prefix "Translate this text into \_\_\_\_\_" (anything from Arabic to Vietnamese) and then the result will be a prompt that will work in your chosen language. This means that students have the option to challenge themselves in their language of choice. There are times when decoupling language barriers from learning are worth exploring. The same technique would also work for Modern Languages courses where the whole point is being challenged in another language!

## **Text and speech**

Most computers, including iPads, have the built in facility to read the text on screen out loud, and dictate your speech into text. It's perfectly possible to use the prompts in this booklet to develop oracy, as well as benefit from audio reinforcement.

# Passive prompts

Although the use of purely passive prompts that don't ask for anything back from the user are far from the most powerful example of AI use, when used in moderation they can be helpful. They can act as an 'aide memoire' before revising a topic, as a research tool for extra-curricular projects / off-syllabus extension tasks, or as a starting point for a deeper level activity.

The following prompts are offered with an honest disclaimer:

**Learning is hard work. Don't build up a false sense of confidence with all this AI 'knowledge' at your fingertips.**

## Explanations

Explain the difference between microeconomics and macroeconomics. Structure your response in precise, clear sentences. Use bullet points if helpful. At the end, include a glossary of any terms whose meaning is subject specific – do not include the original terms in the glossary.

## Timelines

Generate a timeline of macroeconomic theory developments in the 20th century.

## Summary tables

Generate a summary table outlining a selection of notable figures in the development of macroeconomic theory in the 20th century. For each, include their name, years they lived, nationality, education, major fields they influenced, and awards received.

## Podcasts

Write a script for an episode of a podcast called 'economics review', featuring two presenters: A teacher and an experienced entrepreneur. Invent names and brief backstories for the presenters, give them different but complementary personalities. The podcast should be targeted at A level students. In the first episode, introduce the difference between micro and macroeconomics.

## Translations

Translate the following from English to French. Afterwards, note in English any particularly notable differences in the language structure of the original and target language: *[Text goes here]*



Feedback welcomed:

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