

# **Tinkering with Tomorrow: Learning, Imagination, and Generative AI in the Classroom**

## **Session 1**

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# Generative AI (GenAI) in Simple Terms:

- **Generative AI** refers to a subset of AI technologies designed to create new content across various formats, such as text, images, videos, music, code and more.
- **Large Language Models (LLMs)** are at the core of GenAI, processing vast amounts of text data to understand context and generate coherent responses.



# Generative AI (GenAI) in Simple Terms:

- *Generative Pretrained Transformers (GPTs)* are specific types of LLMs that predict the next word in a sequence based on the preceding words.
- All LLMs and GPTs use *Neural Networks* with progressively complex layers of data processing to enhance their understanding of language. *Weights*, learned during training, set parameters that determine how **Tokens** (words) are processed.

# The Main LLM Contenders



OpenAI's  
ChatGPT  
o1-  
preview  
achieves  
PhD level  
chain of  
thought  
reasoning

The Gemini logo, featuring the word "Gemini" in blue and purple text with a small star above the 'i', set against a dark purple circular background.

Google's  
Gemini  
1.5 excels  
at long-  
context  
under-  
standing  
and  
retrieval

The Claude logo, featuring a stylized orange starburst icon followed by the word "Claude" in black text, set against a white circular background.

BY ANTHROPIC

Anthropic's  
Claude 3.5  
Sonnet is  
great for  
writing,  
editing,  
and  
executing  
code

The Mistral AI logo, featuring a stylized "M" made of colorful blocks (red, orange, yellow, black) followed by the text "MISTRAL AI\_" in black, set against a white circular background.

Mistral's  
Pixtral  
vision  
specialises  
in image  
recognition

The Meta logo, featuring the infinity symbol followed by the word "Meta" in black text, set against a white circular background.

Meta's  
Llama 3  
is an  
open-  
source  
model  
that can  
be fine  
tuned

# The Key to Getting the Desired Output: The Prompt

A **Prompt** is a statement or question designed to elicit a response or action. Effective prompts are clear, concise, and tailored to the audience's interests or needs.

The PARTS\* model - a guide to prompting:

- **Persona:** Identify your role.
- **Aim:** State your objective.
- **Recipients:** Specify the audience.
- **Theme:** Describe the style, tone, and any related parameters to shape the response.
- **Structure:** Note the desired format of the output.

\*PARTS was created by Google 2024



# Chaining (From Prompt to Content)

## Prompt:

**Persona:** I am a middle school science teacher who is currently teaching 6 types of tropisms: phototropism, geotropism, chemotropism, hydrotropism, traumatotropism and electrotropism.

**Aims:** Generate lyrics to a lively indie pop song to help my students recall these 6 types of tropisms.

**Recipients:** My students are 13-year-olds.

**Theme:** Generate the lyrics in the style of the most popular indie pop artists of 2022-24, ensuring that your output is scientifically accurate while maintaining a catchy tune.

**Structure:** Use British English and limit your output to under 500 words.

# Chaining (From Prompt to Content)

## Text Output from ChatGPT o1-preview

### Tropism Tunes

#### ***Verse 1:***

In the morning light, the seedlings start to grow,  
Reaching for the sun, that's phototropism's show.  
Roots digging deep where the gravity pulls,  
Geotropism's guiding, keeping them full.

#### ***Pre-Chorus:***

From chemicals to currents flowing through,  
Nature's got the moves, and now you do too!

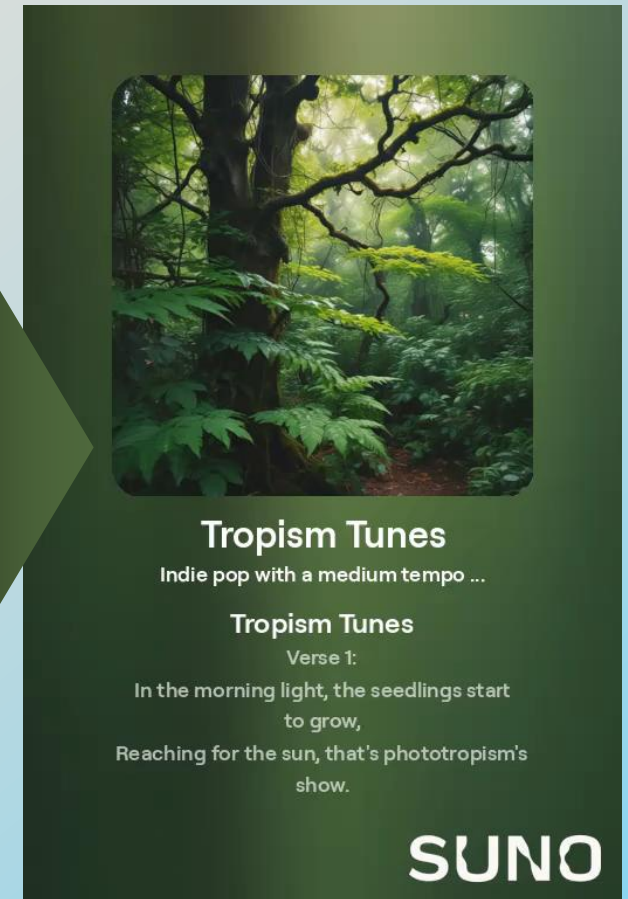
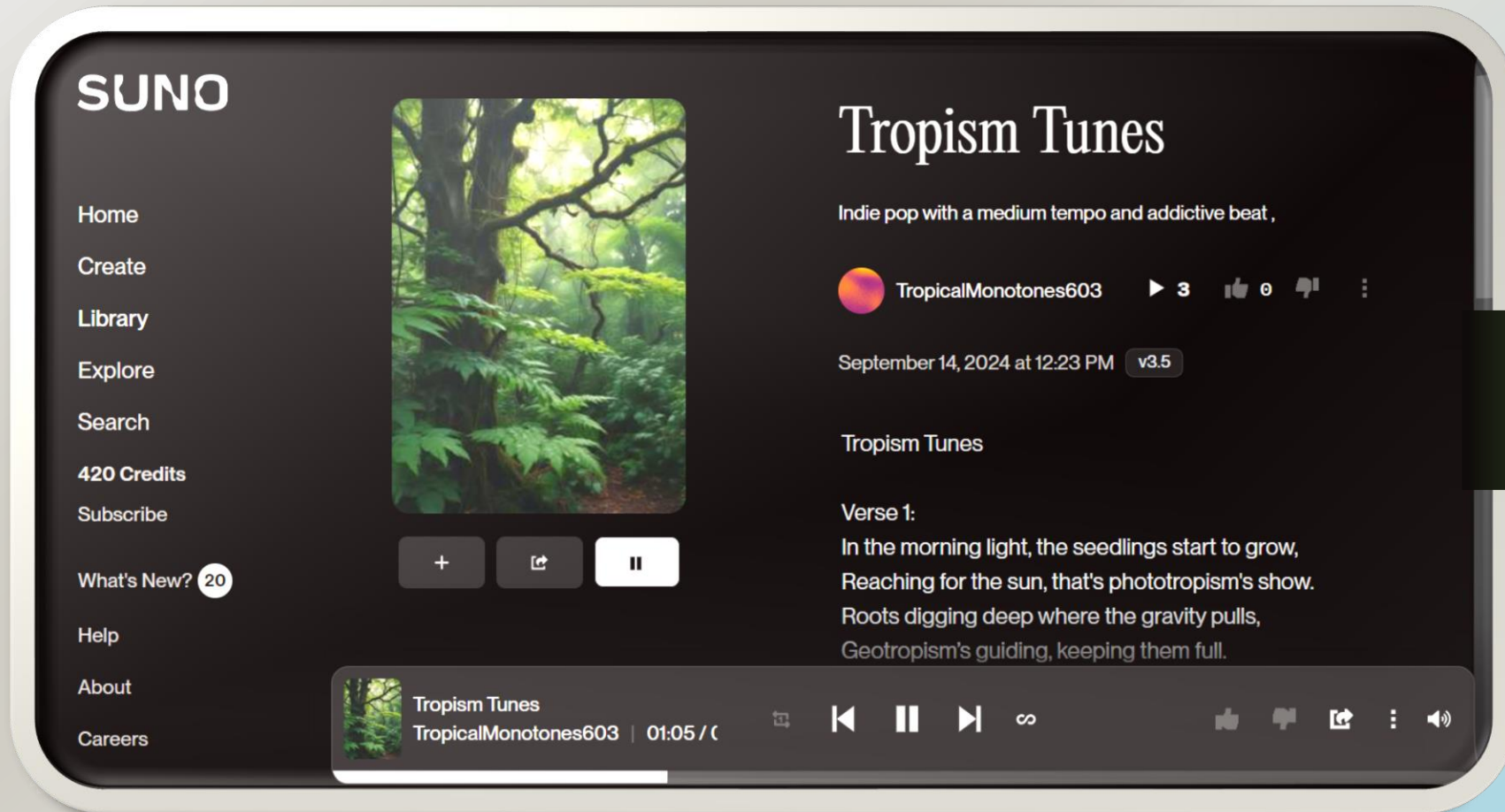
**Chorus:** Oh, we're dancing with the tropisms, Six ways life finds its way. Light and gravity, chemicals in play, Water, winds, and electric sway...cont..



# Chaining (From Prompt to Content)

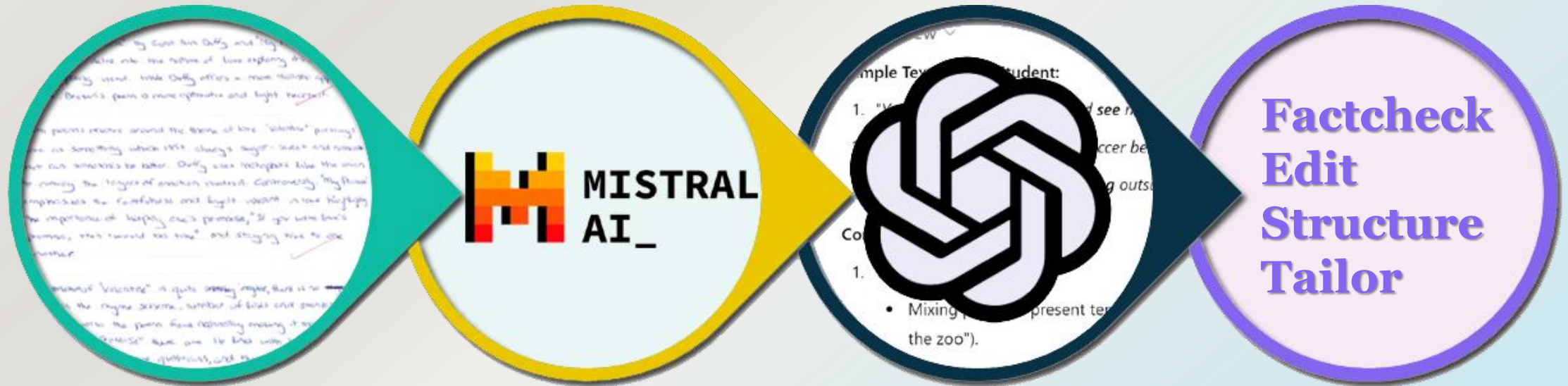
## SUNO GenAI Music Generator

## Media Output:





# Chaining the Capabilities of Two LLMs



1. Scan  
Handwritten  
Texts

2. Upload,  
Prompt,  
Digitalise

3. Upload,  
Prompt,  
Identify,  
Recommend

4. Personalise  
and  
Adopt

# What are the Various Output Formats of GenAI?



**Text  
to  
Text**



**Text  
to  
Image**



**Text  
to  
Video**



**Text  
to  
Music**



**Text  
to  
Code**

and many others

# Image Generation: Prompt, Platform, Output

**Prompt:** A poor man facing justice, Robert-François Damiens, 16th century France, hyper realistic, stock photo, Sony DSLR quality



  
Midjourney



  
DALL-E

**Prompt:** A contemporary Foucauldian classroom, digital panopticism hyper realistic, power, control, stock photo, Sony DSLR quality




  
Midjourney



  
DALL-E



# Music Generation: Platform and Sample Output



**Let's Get Generative!**  
indie style , with soaring ch...

Oh, there's a force that's breaking through,  
A brand new revolution, baby, just for you!  
It's creating worlds, oh can't you see,  
From words to pictures, oh, it's setting  
us free!  
Come on now, just give me a sign,

**SUNO**



**"Siege of the Mighty Isle"**  
Bluegrass indie mix with a med...

**Verse 1:**  
Oh, it's 1565, the battle's drawing near,  
The Knights of Malta stand, with no sign  
of fear.  
Ottoman sails on the horizon, dark and wide,  
But on this tiny isle, the Knights won't hide!

**SUNO**



**Fibonacci Fire**  
orchestral intense epic  
[Instrumental]

**Suno**



# Other Video and Speech Platforms

## Other Text to Video

### Platforms:

Adobe Firefly

Pika Labs

LTX studio

Runway

Sora\*

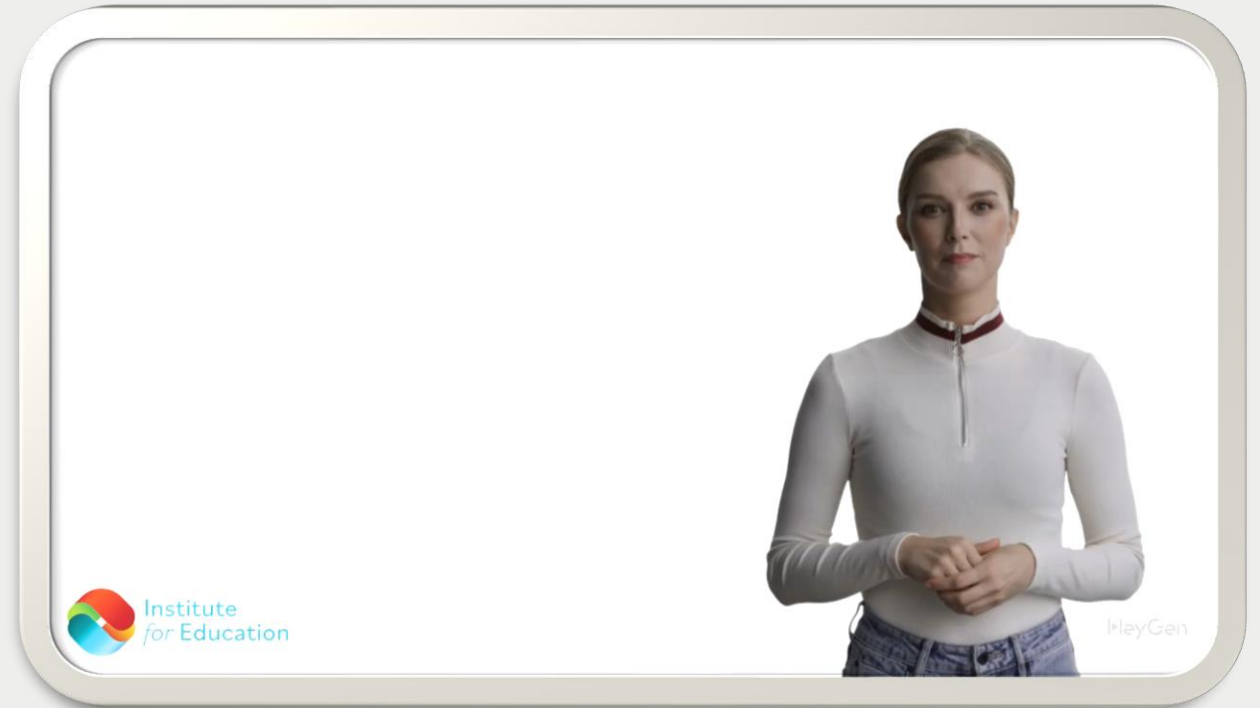
## Text to Speech Platforms:

ElevenLabs

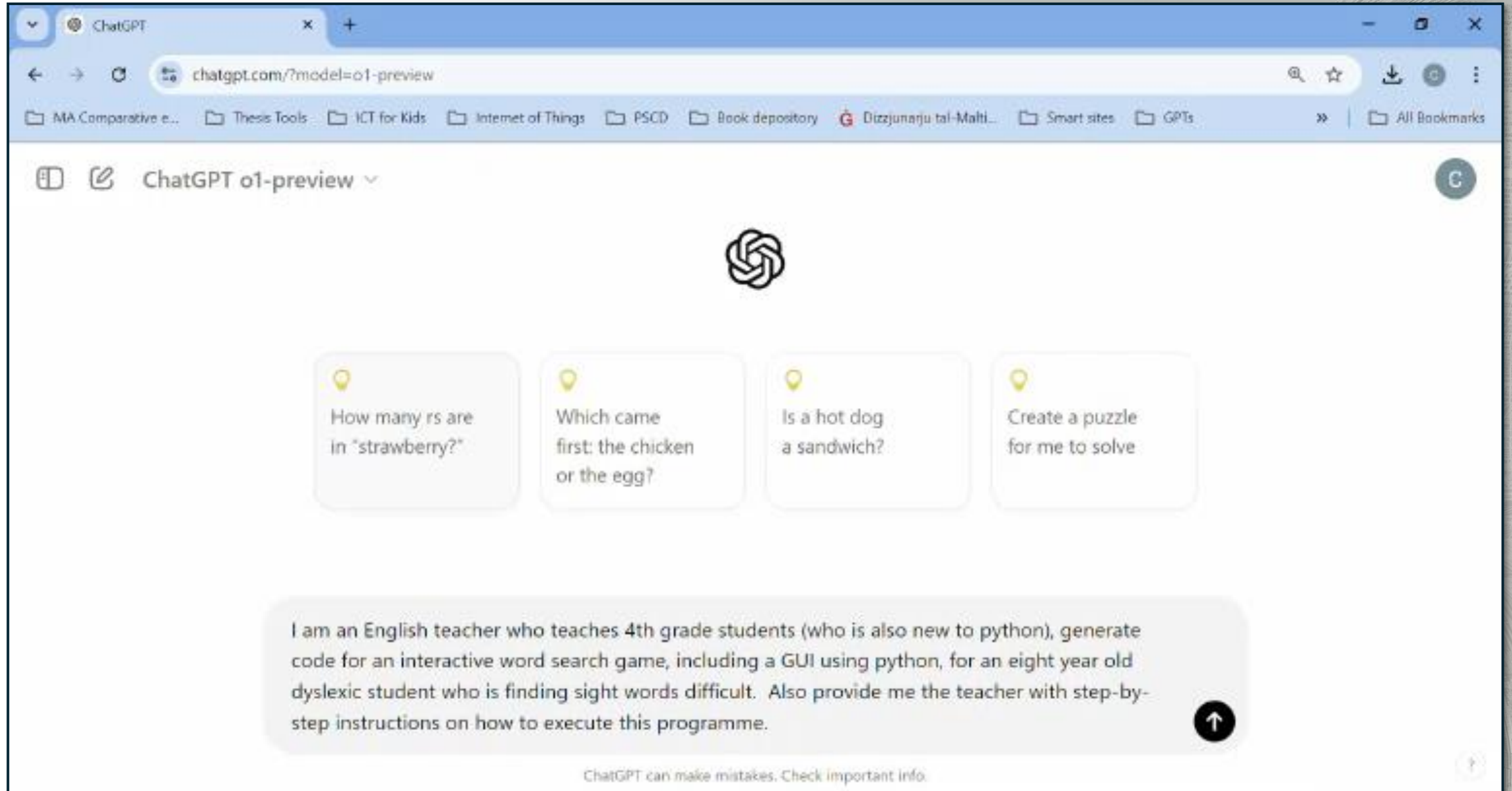
Synthesis

Speechify

Lovo



# Code Generation: Platform and Sample Output



The screenshot shows the ChatGPT o1-preview interface in a browser. The address bar shows the URL `chatgpt.com/?model=o1-preview`. The page title is "ChatGPT o1-preview". The OpenAI logo is centered at the top. Below the logo are four example prompts, each with a lightbulb icon:

- How many rs are in "strawberry?"
- Which came first: the chicken or the egg?
- Is a hot dog a sandwich?
- Create a puzzle for me to solve

The main chat area contains a single user prompt:

I am an English teacher who teaches 4th grade students (who is also new to python), generate code for an interactive word search game, including a GUI using python, for an eight year old dyslexic student who is finding sight words difficult. Also provide me the teacher with step-by-step instructions on how to execute this programme.

At the bottom of the chat area, there is a disclaimer: "ChatGPT can make mistakes. Check important info." and a circular button with an upward arrow.

Model used: ChatGPT o1-preview

# GenAI/AI Powered Academic Research Tools

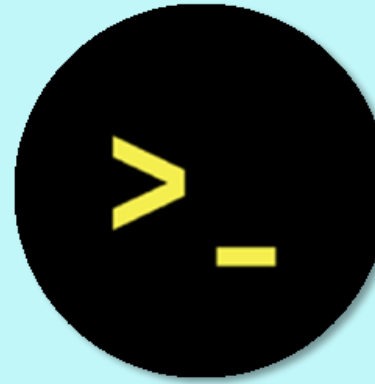
Search, Explore

Evaluate, Verify

Prompt, Refine



Scholar AI



Data Analyst







# What are Custom GPTs?

- Custom GPTs are specialised versions of Large Language Models (LLMs) tailored to perform specific cognitive tasks with minimal human oversight.
- Unlike general LLMs, which are trained on broad datasets, Custom GPTs can be instructed to focus on a particular knowledge base.



# What are Custom GPTs?

- This fine-tuning enables users to create AI assistants that deliver more accurate and relevant responses within their specialised fields, enhancing performance while limiting hallucinations.
- Within the educational domain, Custom GPTs can provide a wide range of solutions, including content generation, intelligent tutoring, and data analysis.









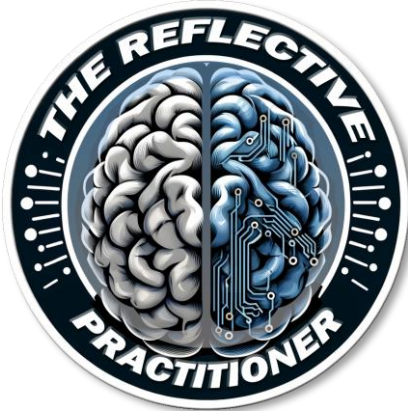
Tailored for primary teachers, offering simple science explanations, classroom experiments aligned with learning outcomes, comprehensive resources, and links to create customised lesson plans and guides.



Designed for middle school integrated science, offering curriculum-aligned assessment tasks and feedback rubrics. It delivers rubrics, lesson plans, objectives, and resource links, ensuring comprehensive support.



A versatile Ethics teaching tool, generating lesson plans with activities, videos and presentations, and offering feedback on teachers' reflective journals. Presented at UNESCO Digital Learning Week 2024.



Informs, engages, co-reflects and provides feedback to educators on reflective practice through embedded resources, debate, analysis and feedback. Features four modes: Teach, Debate, Co-reflect, and Suggest.



A tool for educators to enhance their understanding of art and culture. Featuring distinct modes, it guides users through observation, critical questioning, and research, fostering interactive art exploration.



Offers detailed and persona-based theme analysis with transparent coding, flexible data input, and expert guidance. Ideal for developing interview guides and interactive learning, ensuring thorough and reliable research.