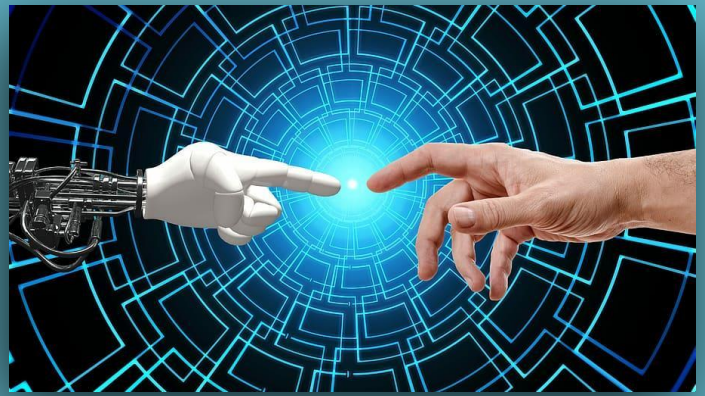
Inclusive Instructional Strategies using AI



LORI COONEY, M.Ed.

Program Director, Inclusive Education & Curriculum Design

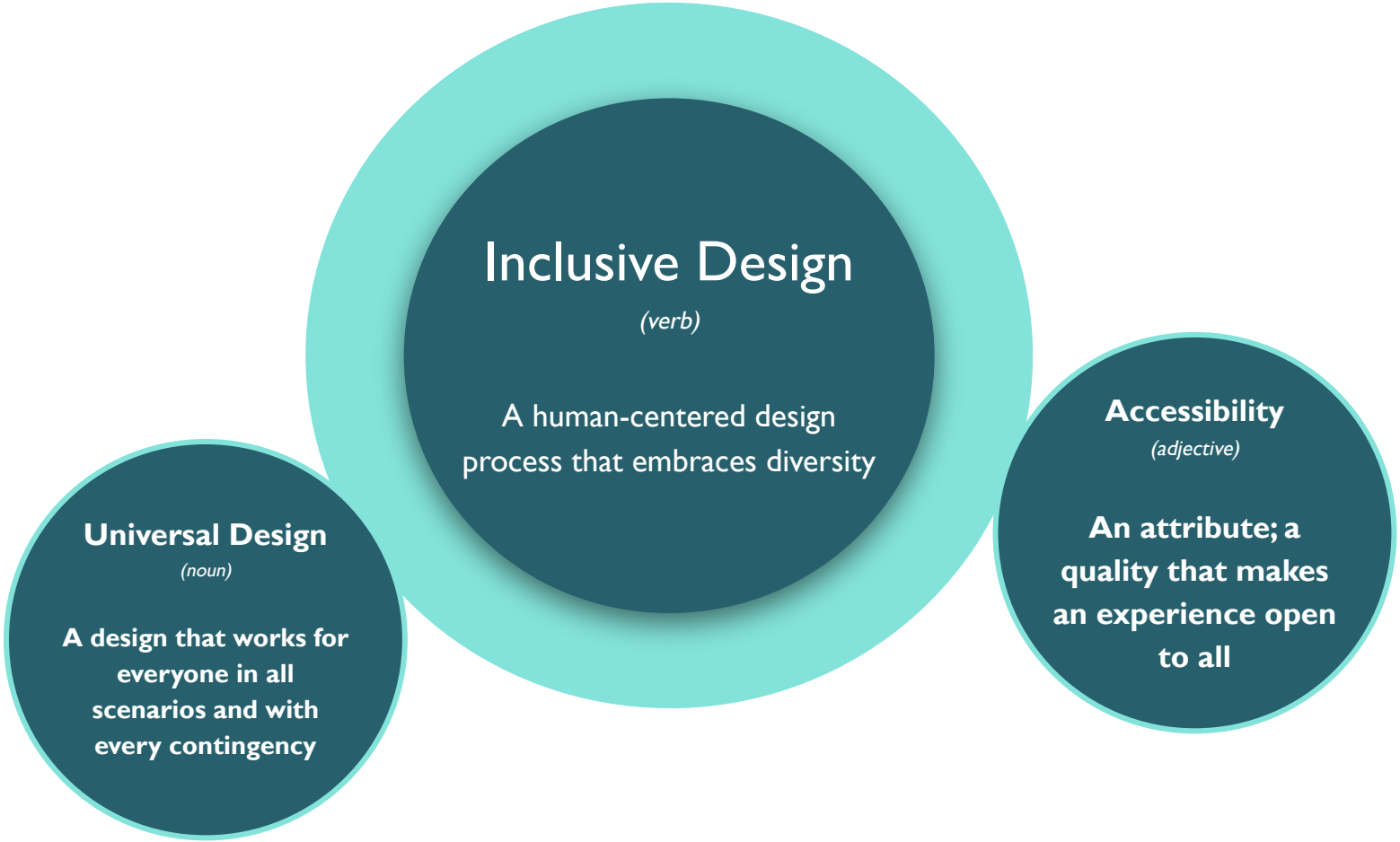
Institute for Community Inclusion at UMass Boston

Inclusive Instructional Strategies using AI

HeyGen

Agenda

- ID Overview
- History of AI
- Types of AI
- Inclusive Strategies
- Tools & Resources
- Q & A



Universal design and accessibility as defined by Kat Holmes.

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Susan M. Goltsman

"Inclusive design doesn't mean you're designing one thing for all people. You're designing a diversity of ways to participate so that everyone has a sense of belonging."

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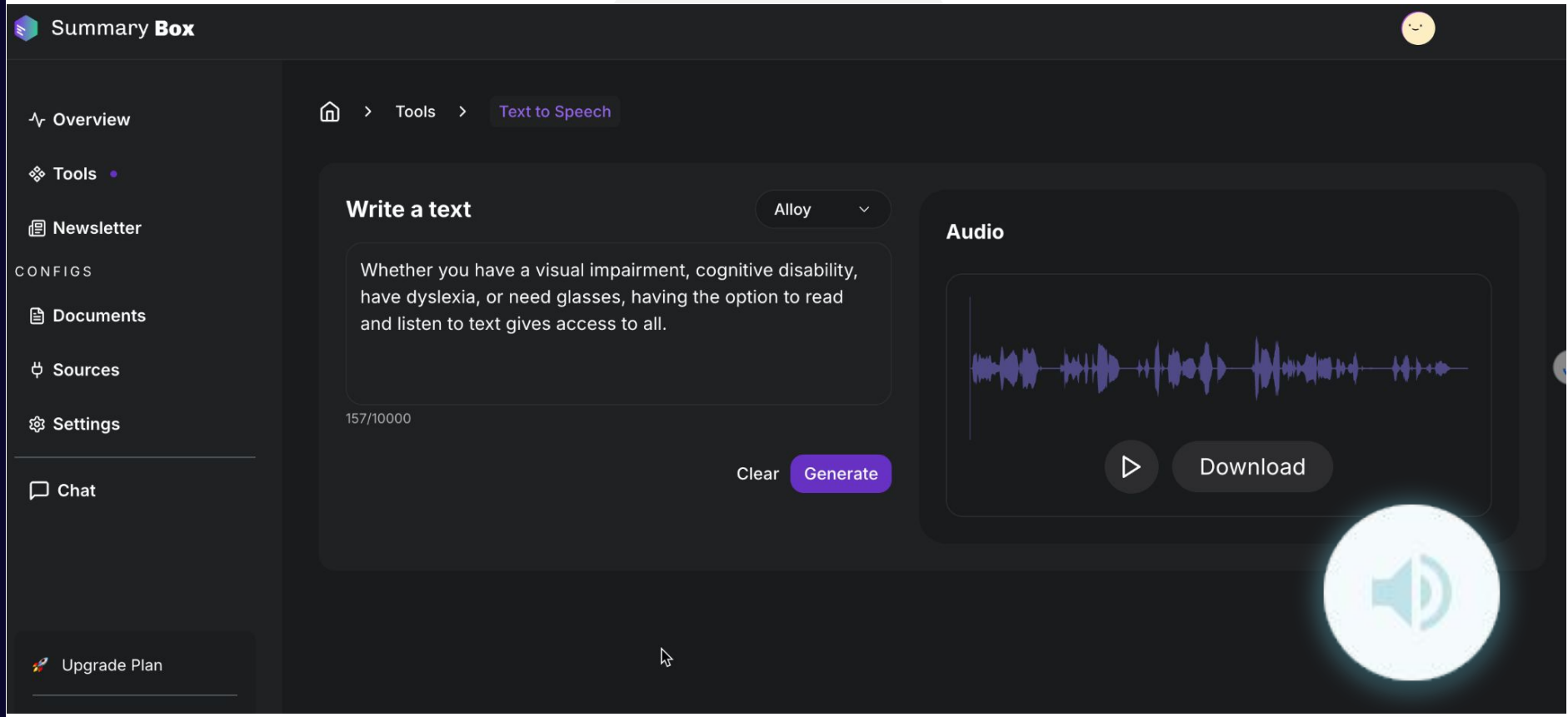
Summary Box



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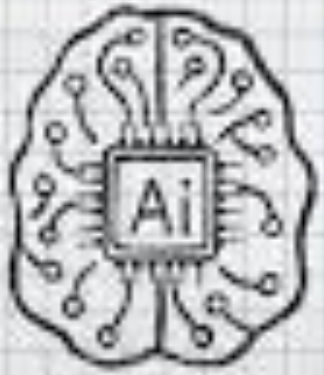
Duke

Artificial Intelligence

How does it work?



Do not edit
How to change the design

When do you think AI was first introduced to the world?

Presenting with animations, GIFs or speaker notes? Enable our Chrome extension

slido

HISTORY OF AI

1950s: AI is born! Scientists first **talk about** making computers think and learn like humans.

1956: The term "Artificial Intelligence" is coined at a conference.

1960s: Computers start learning to play games and solve puzzles.

1970s: Programs that act like experts helping with decisions and technical problems.

1980s: AI faces challenges and funding slows down. This is called an "AI Winter."

1990s: Computers become faster & AI masters chess and can answer some questions.

2000s: AI becomes part of our daily lives with smartphones and smart devices.

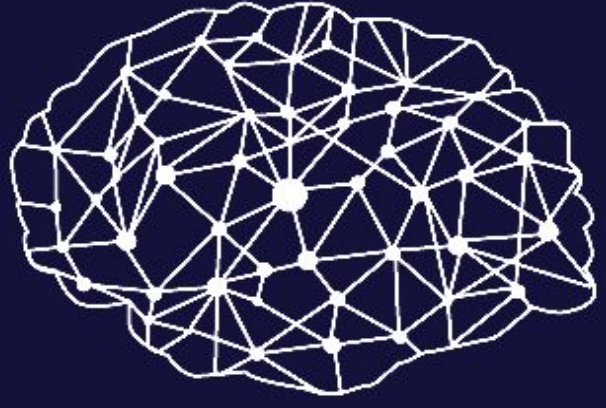
2010s: AI gets really smart with deep learning (speech recognition and self-driving cars).

2020s: AI continues to grow in healthcare, education - making tech. "smarter" & more helpful.

OpenAI. (2024). *ChatGPT* [Large language model]. https://chatgpt.com

ARTIFICIAL INTELLIGENCE

Techniques allowing computers
to copy a human behavior



MACHINE LEARNING

AI techniques
allowing computers to learn
to solve a a specific task

DEEP LEARNING

A subset of Machine Learn
based on the use of
neural networks

1950 1960 1970 1980 1990 2000 2010 2020 ...

TYPES OF AI

- Machine Learning
- Deep Learning
- Natural Language Processing
- Computer Vision
- Assistive AI
- Generative AI

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MACHINE LEARNING

Computers use data to make decisions

- Video recommendations (YouTube)
- Personalized playlist (Spotify)
- Online shopping recommendations (Amazon)
- Predictive text on smartphones
- Adaptive learning (Khan academy)
- Filters for spam emails
- Smart thermostats

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DEEP LEARNING

AI learns detailed patterns through many layers of data

- Voice assistants understand commands
- Facial recognition (unlock phone)
- Language translation
- Self-driving cars
- Describing visuals
- Smart home voice commands

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NATURAL LANGUAGE PROCESSING

AI understands and uses human language

- Asking Google/Alexa/Siri about the weather
- Chatbots to help with questions online
- Voice-to-text
- Language translators
- Playing music
- Gaming

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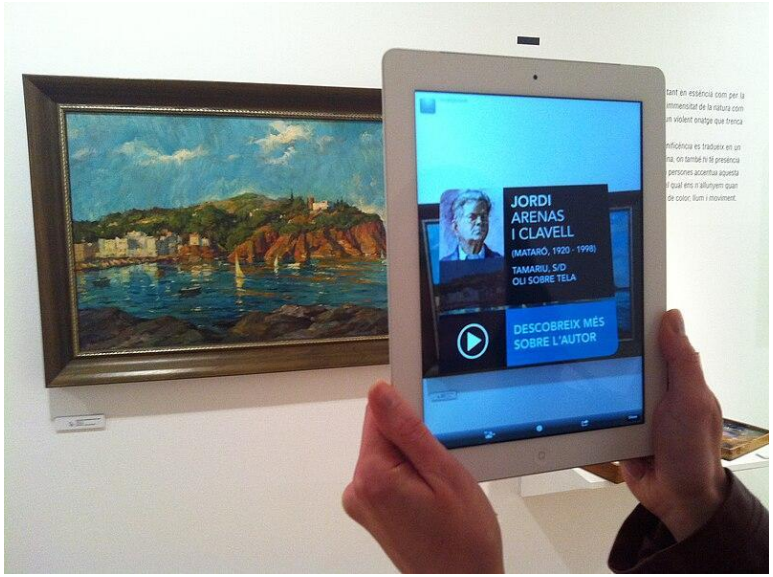
Computer Vision

AI helps computers see & understand pictures & images



- Friends and family members in photos & social media
- AR games
- Scanning checks
- Home security
- Apps like Seeing AI used to describe surroundings
- Generating ALT text

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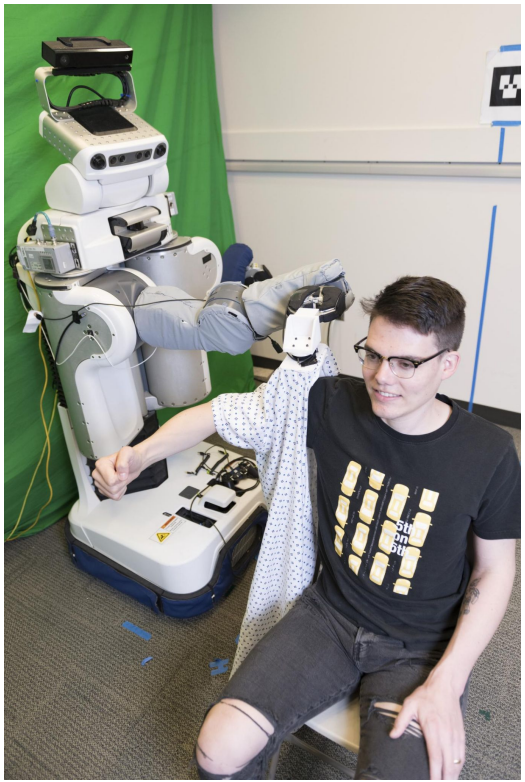
Robotics

AI that helps machines or robots to perform tasks



- Robot vacuum cleaners
- Robotic toys & kits
- Robotic lawn mowers
- Robots that assist with daily tasks like getting dressed

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Assistive AI

AI that helps people with different needs

- Apps/screen readers to read text aloud
- Voice-activated devices
- Speech-to-text
- Navigation apps
- Magnification software
- Language translation

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NaturalReader

Reading Made Easy

Listen to books, documents, and webpages
with AI-powered text-to-speech

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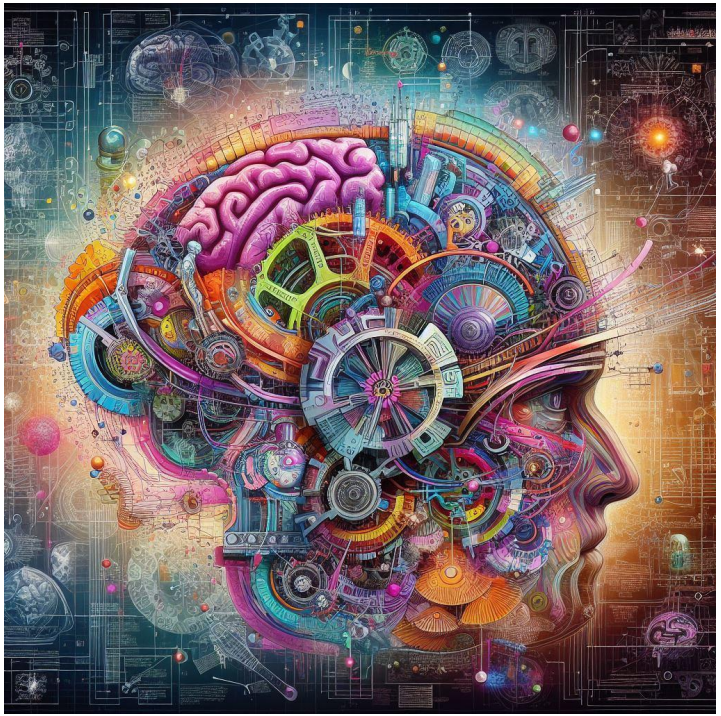
Generative AI

AI that creates new content based on existing data



- AI writing assistants
- Generated art (DALL-E)
- Music composition
- Chatbots for writing
- Audio descriptions for videos

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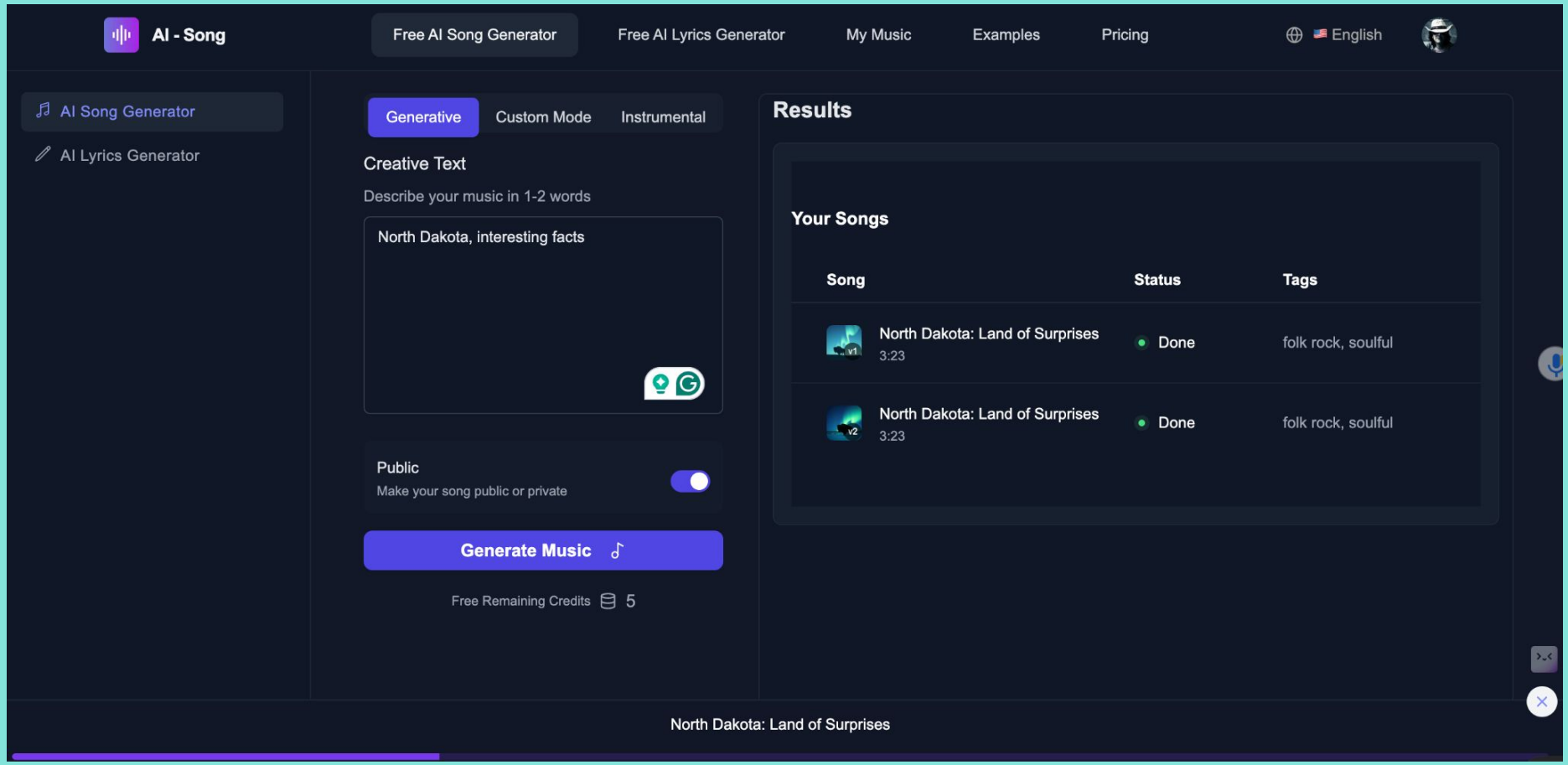

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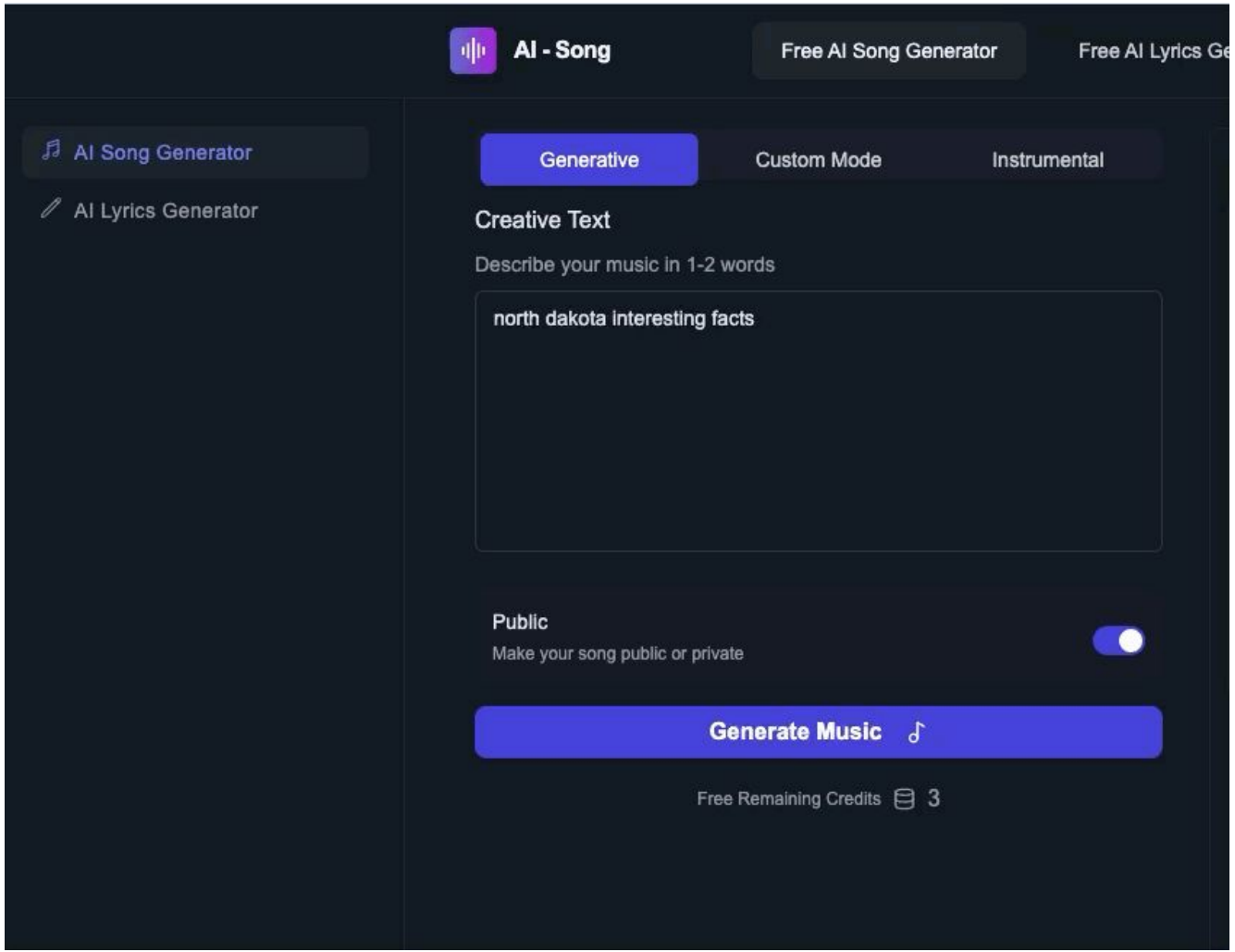

https://ai-song.ai/music/1bNiuRuJFj

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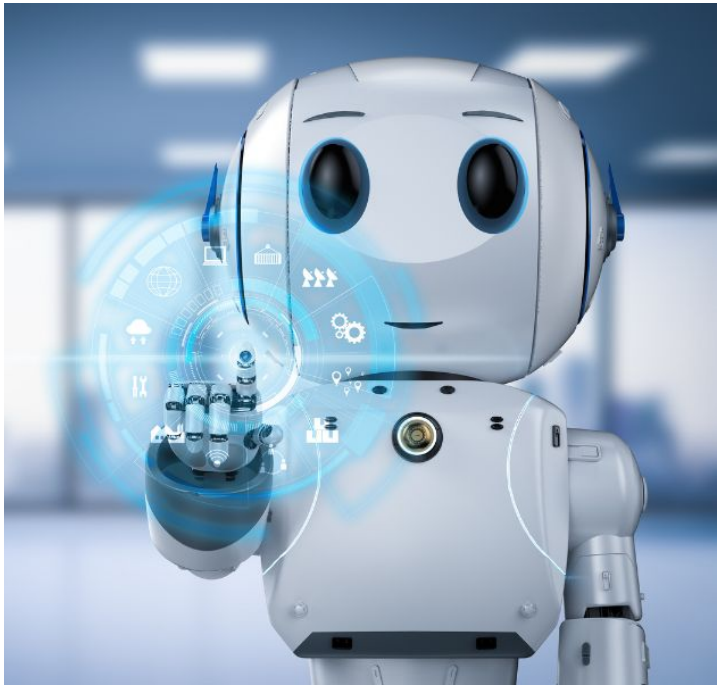
AI TOOLS

- ChatGPT
- Google Gemini
- Claude.AI
- CoPilot
- Perplexity



***Students under 13 NOT ALLOWED. Over 13** must have signed permission from parents/guardians to use some of these AI tools (not COPPA Compliant).

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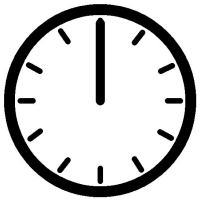
AI for Educators

Your personal assistant!



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AI Features and Benefits for Educators

- **Lesson Planning:** Align standards and activities, saving time.
- **Differentiation:** Quickly adjust lessons to meet the needs of diverse learners
- **Apply UDL (Universal Design for Learning):** AI supports the creation of flexible materials that meet the needs of all students.
- **Inclusion & Accessibility:** Tools ensure resources are accessible, offering alternatives like text-to-speech or captions.
- **Accommodations:** Automatically generate accommodations for students with IEPs or 504 plans.
- **Generating Images:** AI platforms like Canva, Adobe, and others can quickly create visuals to support instruction and engagement.
- **Language Support for Students and Families:** AI translation tools offer instant translations to communicate with multilingual students and families.

OpenAI. (2024). *ChatGPT* [Large language model]. https://chatgpt.com

UDL Guidelines

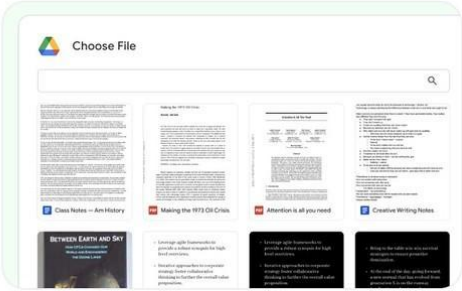
The goal of UDL is **learner agency** that is purposeful & reflective, resourceful & authentic, strategic & action-oriented.

	Design Multiple Means of **Engagement**	Design Multiple Means of **Representation**	Design Multiple Means of **Action & Expression**
Access	Design Options for **Welcoming Interests & Identities** (7) • Optimize choice and autonomy (7.1) › • Optimize relevance, value, and authenticity (7.2) › • Nurture joy and play (7.3) › • Address biases, threats, and distractions (7.4) ›	Design Options for **Perception** (1) • Support opportunities to customize the display of information (1.1) › • Support multiple ways to perceive information (1.2) › • Represent a diversity of perspectives and identities in authentic ways (1.3) ›	Design Options for **Interaction** (4) • Vary and honor the methods for response, navigation, and movement (4.1) › • Optimize access to accessible materials and assistive and accessible technologies and tools (4.2) ›
Support	Design Options for **Sustaining Effort & Persistence** (8) • Clarify the meaning and purpose of goals (8.1) › • Optimize challenge and support (8.2) › • Foster collaboration, interdependence, and collective learning (8.3) › • Foster belonging and community (8.4) › • Offer action-oriented feedback (8.5) ›	Design Options for **Language & Symbols** (2) • Clarify vocabulary, symbols, and language structures (2.1) › • Support decoding of text, mathematical notation, and symbols (2.2) › • Cultivate understanding and respect across languages and dialects (2.3) › • Address biases in the use of language and symbols (2.4) › • Illustrate through multiple media (2.5) ›	Design Options for **Expression & Communication** (5) • Use multiple media for communication (5.1) › • Use multiple tools for construction, composition, and creativity (5.2) › • Build fluencies with graduated support for practice and performance (5.3) › • Address biases related to modes of expression and communication (5.4) ›
Executive Function	Design Options for **Emotional Capacity** (9) • Recognize expectations, beliefs, and motivations (9.1) › • Develop awareness of self and others (9.2) › • Promote individual and collective reflection (9.3) › • Cultivate empathy and restorative practices (9.4) ›	Design Options for **Building Knowledge** (3) • Connect prior knowledge to new learning (3.1) › • Highlight and explore patterns, critical features, big ideas, and relationships (3.2) › • Cultivate multiple ways of knowing and making meaning (3.3) › • Maximize transfer and generalization (3.4) ›	Design Options for **Strategy Development** (6) • Set meaningful goals (6.1) › • Anticipate and plan for challenges (6.2) › • Organize information and resources (6.3) › • Enhance capacity for monitoring progress (6.4) › • Challenge exclusionary practices (6.5) ›

Google NotebookLM

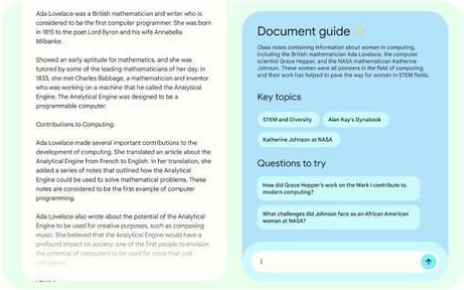
Welcome to NotebookLM

EXPERIMENTAL



Upload Sources

Pick the docs you want to use from Google Drive, and NotebookLM will use those sources to answer your questions.



Chat with an assistant

NotebookLM automatically gives you the major themes and suggests questions to help you understand your sources.

Get creative

But don't stop there. NotebookLM can explain, organize, remember, or riff on whatever information you give to it. So ask away!

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Generative AI with PADLET

“I Can’t Draw” in Padlet

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Padlet Activity

Example: Book Deal

A Jurassic Adventure

- Choose a group category on Padlet to create an image to pitch to ‘Scholastic’ for your upcoming book that will be turned into a cartoon video series!
- Make sure to give it a catchy title then add a comment below to describe the story.
- Use the "I Can't Draw" feature when you press the + sign and revise until you get the image you want.

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AI Empowers Inclusion & Enhances Learning

- Personalize learning with customized instruction based on strengths/weaknesses
- AI Chatbots/virtual tutors enable students to repeatedly practice (quizzes, conversations, simulations) which reinforces learning
- Instant feedback & real-time assessments - help students identify mistakes early
- Offers detailed, step-by-step explanations with details to build understanding
- Promotes educational equity with accessible tools for ALL learners
- Allows teachers/instructors to be more efficient

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TIPS FOR USING AI SAFELY & EFFECTIVELY

- **Be Aware of Bias:** AI can sometimes reflect biases in the data it was trained on.
- **Recognize AI Limits:** AI doesn't have feelings or life experiences. It generates responses from data.
- **Learn and Improve:** Use AI to enhance your learning and skills, not as a replacement for your own efforts and creativity.

OpenAI. (2024). *ChatGPT* [Large language model]. https://chatgpt.com

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TIPS FOR USING AI

- **Ask clear questions –** be specific
- **Help with learning –** flashcards, lists, details
- **Check the facts –** check against trusted sources
- **Be polite and respectful –** say please and thank you
- **Use AI Responsibly –** use for good purposes

Protect your privacy – change settings otherwise, everything is public!

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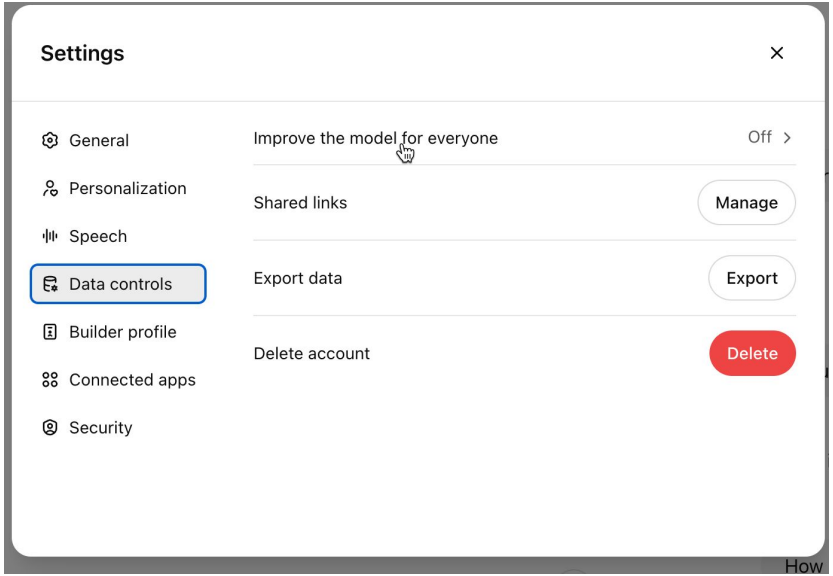
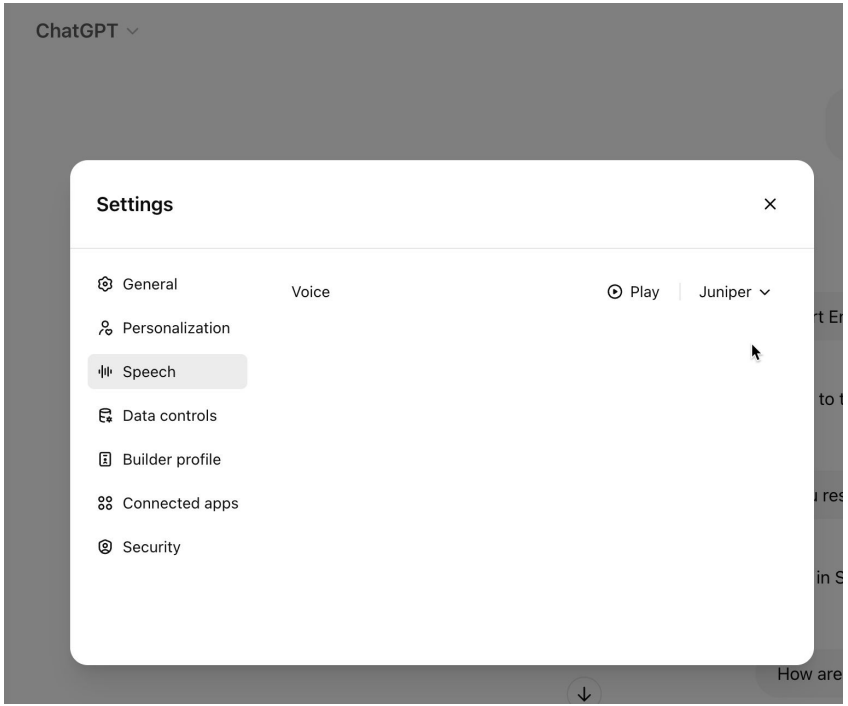
ChatGPT Settings





Sign up or login to chatgpt.com

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ChatGPT

Practicing Prompts

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Travel Itinerary Prompt (copy/paste/edit)

Instructions: Start with #1, wait for response, then add #2 (if needed), then #3

1

I am planning to go to **[insert destination]**, for **[insert number of days]**. Act like a travel agent and plan the top things to do, including activities for families, local cuisine experiences, and must-see attractions.

2

Based on the itinerary you created for **[insert destination]**, suggest specific activities for the mornings, afternoons, and evenings that cater to a mix of adventure, relaxation, and local culture. Also, recommend the best times to visit each place and any packing tips.

3

Now, provide links to websites or resources for booking activities or learning more about the destinations in **[insert destination]**. Also, suggest what I should pack based on the weather during the time I'm going, and recommend the best time of year to visit each attraction.

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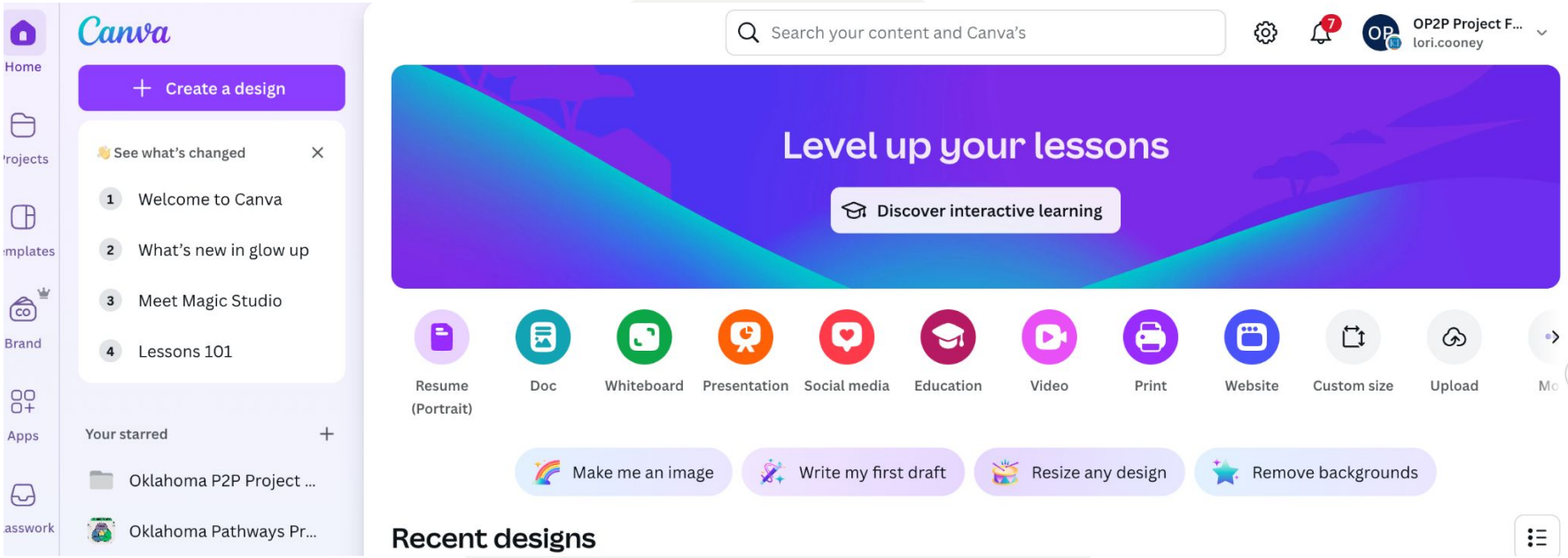

Create a brochure or video of your 'travel' adventures in Canva (from ChatGPT prompt)

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https://www.weareteachers.com/ai-prompts/

How To Write Good AI Prompts

Give your AI an identity

Tell your AI who it is. If your AI prompts are about tennis, for example, start by saying something like "You're Serena Williams," and then ask, "Help me come up with a writing prompt about tennis for 5-year-olds." Some other examples might be "You're a NASA astronaut. Help me come up with trivia questions for my sixth grade students about the planet Mars," or "You're Mark Cuban. What's a good prompt to get high schoolers to write about their career aspirations?"

Be very specific

You don't want to leave the AI tool guessing, because it will probably fill in the wrong blanks. Instead, get as specific as possible about the topic, grade or difficulty level, and any other important details that should be included in the tool's response.

Incorporate educational objectives

Are you trying to meet certain curriculum-based learning objectives? If so, be sure to include these in your directions for generating AI prompts.

Define the audience

Be clear about who the AI prompt is for. Are you writing for 3rd grade parents or 11th grade AP U.S. history students? Tailor your prompts to suit the specific audience to ensure relevance and engagement.

Use open-ended questions

The goal is to allow for creative and open-ended responses to encourage problem-solving and creativity among your students.

Encourage critical thinking

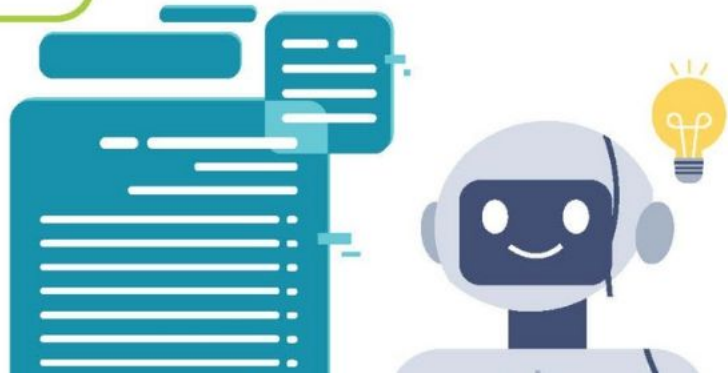
Consider ways to generate AI prompts that promote critical thinking.

Define the output

Specify what you want the AI to generate. Whether it's a list of 20 writing prompts, a worksheet with 10 true-or-false questions, or a short letter with an introduction, two body paragraphs, and a conclusion, being clear about the desired output helps the AI deliver more accurate results.

Give feedback to refine the output

Interact with the AI like you would with a student on an assignment. Provide feedback if you need more or different information. This helps refine the AI's responses and improves the quality of the output over time.



AI PROMPT IDEAS

- Help me create a to-do list for my class projects.
- Check my grammar and spelling.
- Provide tips on note-taking during class lectures.
- Generate flashcards to help students review _____.
- Help me find a book on [topic/interest].
- Review/revise/create email a parent/guardian about [missing assignment/behavioral issues].

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Instructional Strategy: Student Choice Board

Science Journal Entry - Write a journal entry reflecting on a recent science lesson.

Create a Poster - Design a poster that illustrates a scientific concept studied.

Group Presentation - Collaborate with peers to present a scientific topic to the class.

Science Experiment - Conduct a simple experiment at home and document the results.

Video Explanation - Create a short video explaining a science concept in your own words.

Interactive Quiz - Develop a quiz with multiple-choice questions on the topic.

Research Project - Research a scientist who made significant contributions to science and present your findings.

Creative Story - Write a fictional story that incorporates scientific principles or concepts.

Mind Map Creation - Create a mind map that connects different scientific ideas discussed in class.

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AI PROMPT: Student Choice

"I have a student with an IEP that includes accommodations for [specific disabilities or needs, e.g., ADHD, dyslexia, language]. Create some choices boards I can use in a lesson on [subject/topic]?"

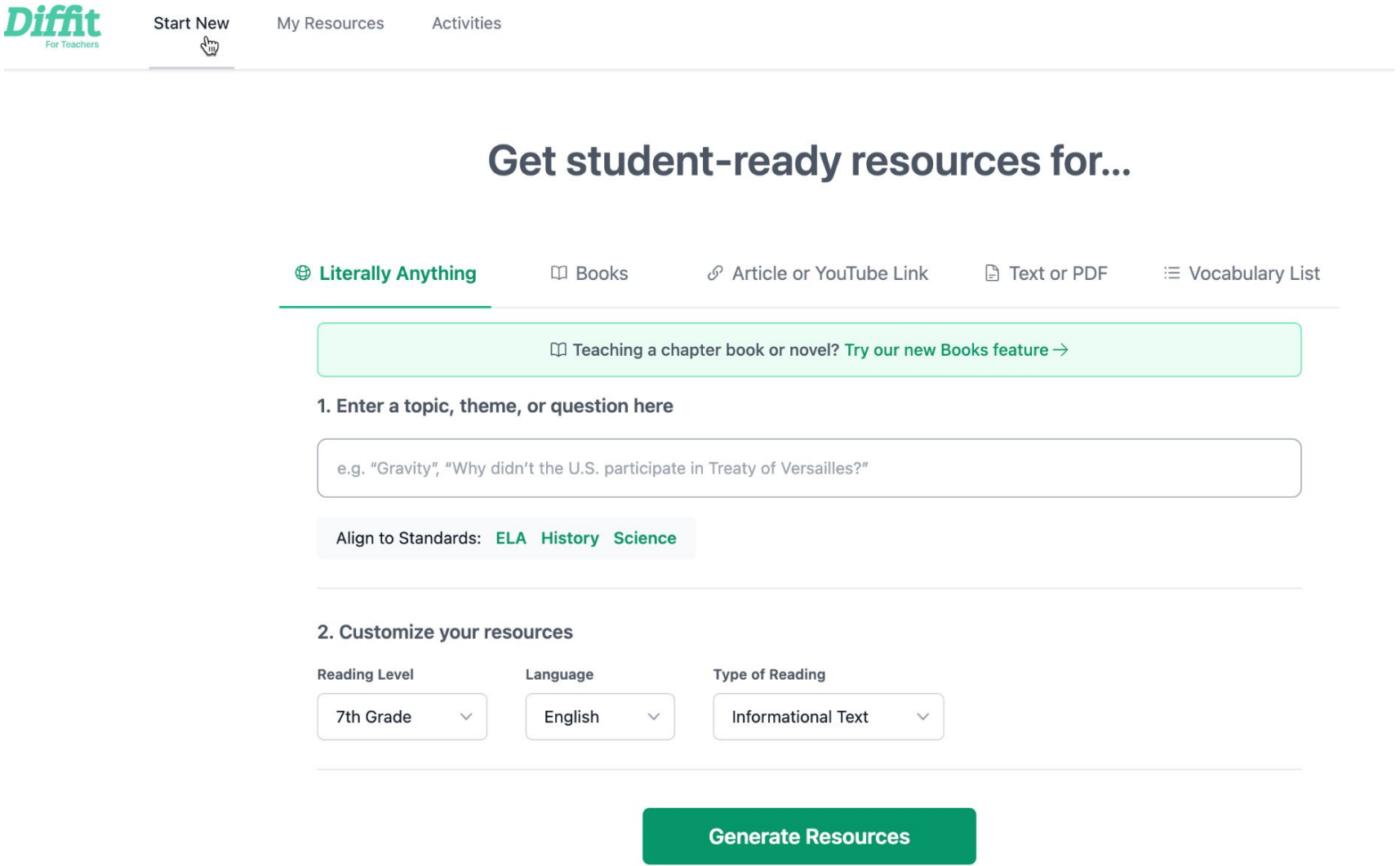
Additional prompt topics:

- Create an image
- Provide a Link
- Summarize Content
- Create a Quiz
- Translate a Passage
- Create a student handout
- Ask AI what other suggestions it has

OpenAI

Gemini

OpenAI. (2024). *ChatGPT* [Large language model]. https://chatgpt.com



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Instructional Strategy: Game-Based Assessment

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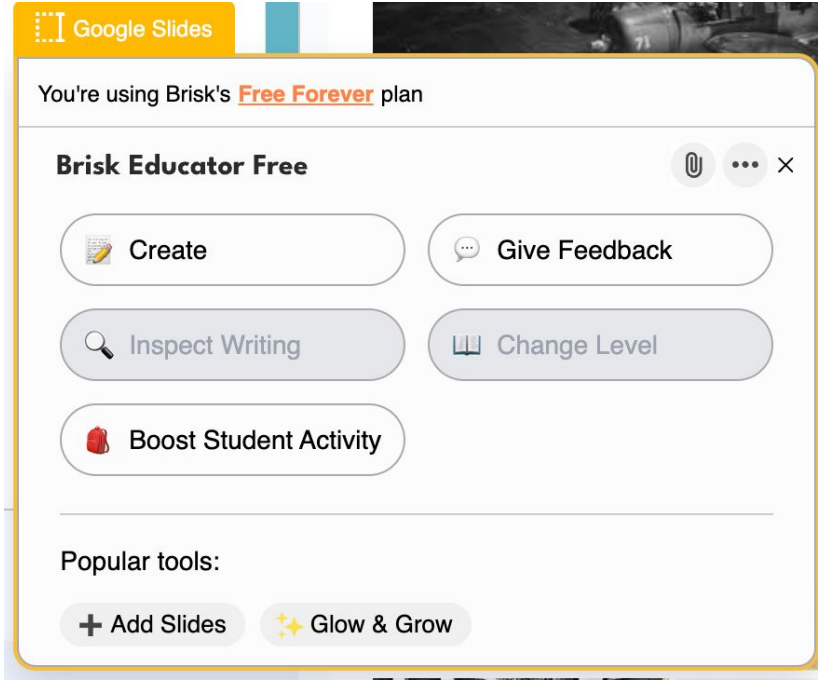
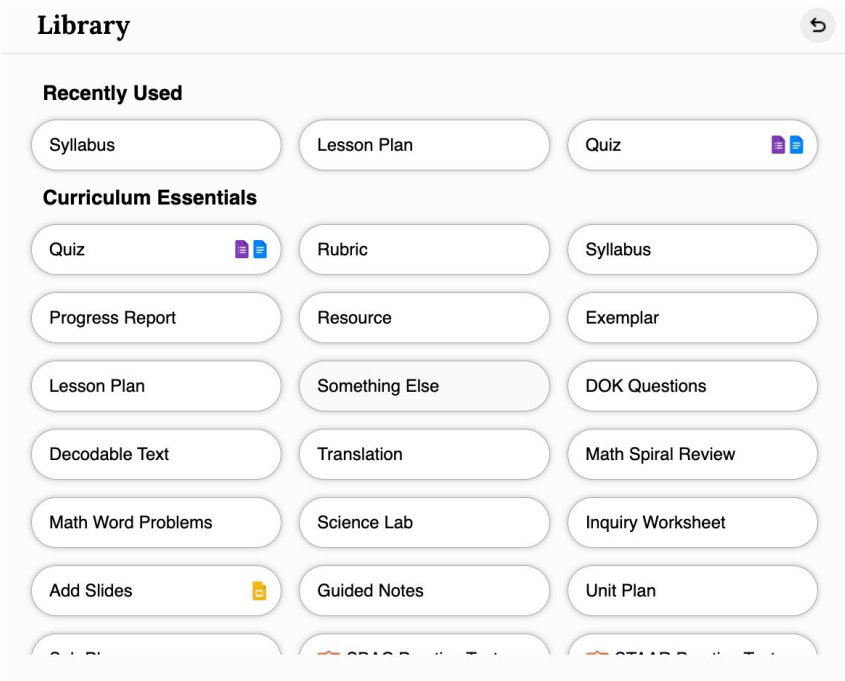
Instructional Strategy: Syllabus with Brisk





Chrome Extension

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AI PROMPT: Accommodations

"Please suggest 5 accommodations for a student with [specific disability] during a lesson on [subject/topic/grade]. Consider modifications for instruction, assessment, multilingual learners, standards in [specify standards] and materials."

Additional prompt topics:

- Create an image
- Provide a Link
- Summarize Content
- Create a Quiz
- Translate a Passage
- Create a student handout
- Ask AI what other suggestions it has

OpenAI. (2024). *ChatGPT* [Large language model]. https://chatgpt.com

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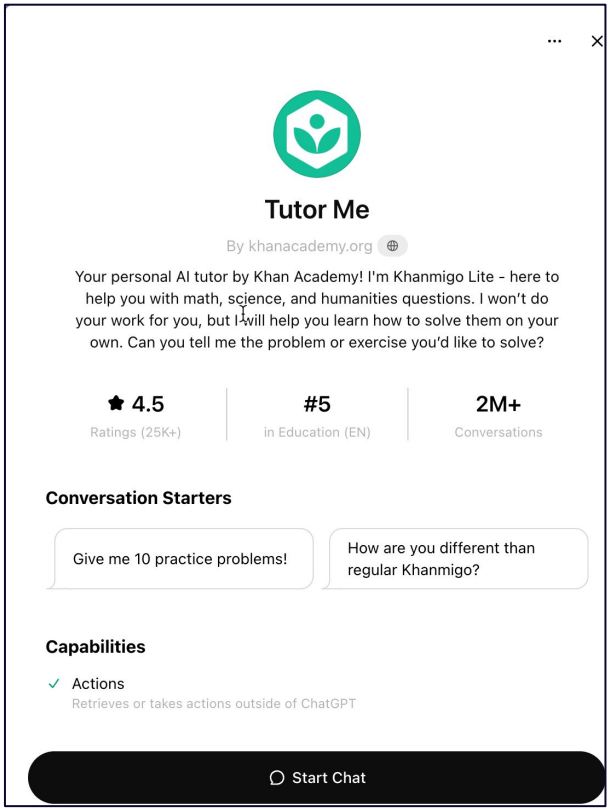
ChatGPT as a Tutor



Khan Academy

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AI PROMPT: Simplify Language

"How can I simplify the following lesson objective for better understanding by students with language processing challenges? [insert lesson objective]."

Additional prompt topics:

- Create an image
- Provide a Link
- Summarize Content
- Create a Quiz
- Translate a Passage
- Create a student handout
- Ask AI what other suggestions it has

OpenAI. (2024). *ChatGPT* [Large language model]. https://chatgpt.com

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Strategy: Reading Summary

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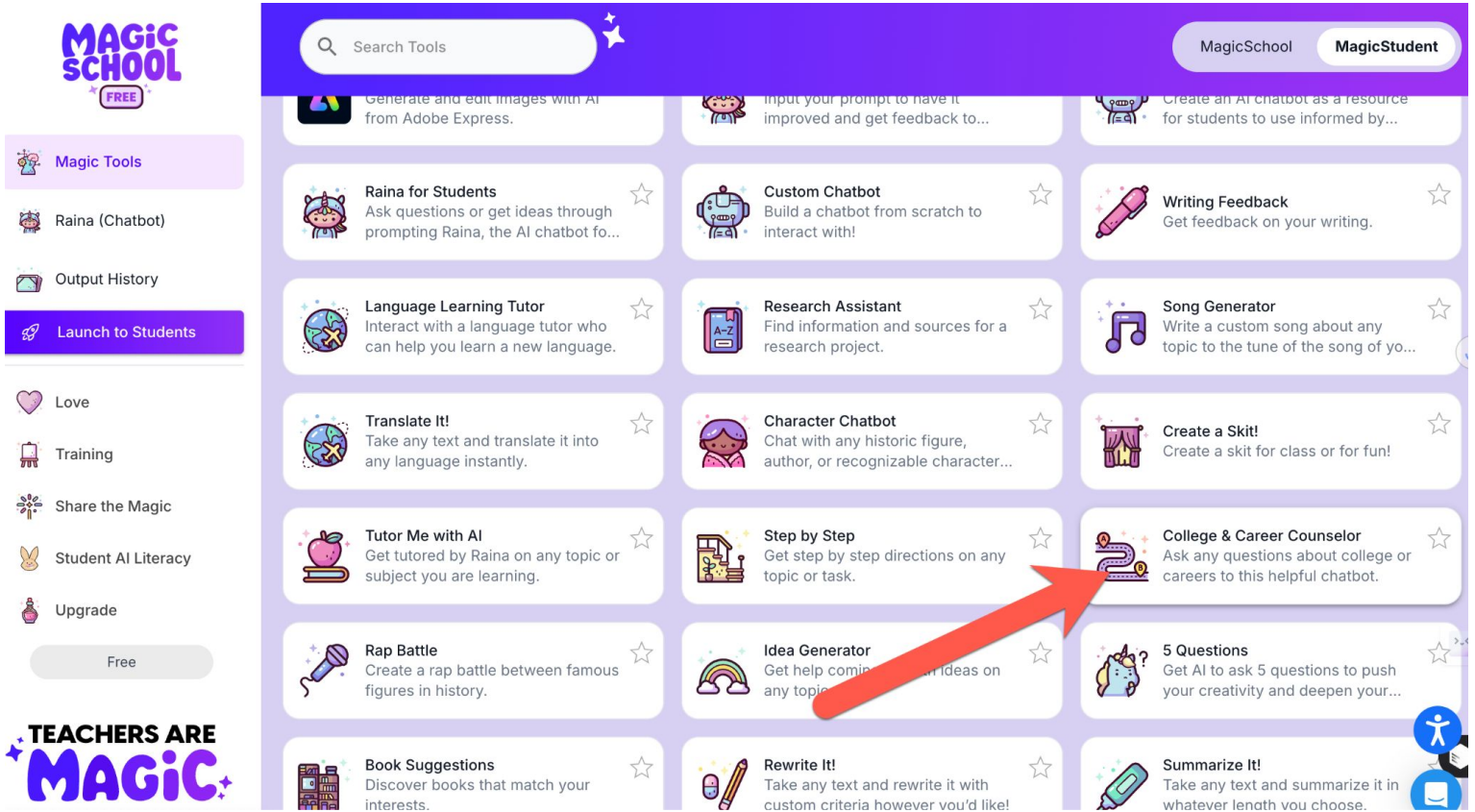
Strategy: AI Career Counselor



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AI PROMPT: Alternative Assessments

"What are some UDL or alternative assessment methods for evaluating understanding in a lesson about [topic] that would accommodate [multilingual language students, IEPs]?"

Additional prompt topics:

- Create an image
- Provide a Link
- Summarize Content
- Create a Quiz
- Translate a Passage
- Create a student handout
- Ask AI what other suggestions it has

OpenAI. (2024). *ChatGPT* [Large language model]. https://chatgpt.com

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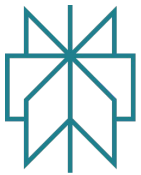
AI PROMPT: Visual Supports

"Suggest ways to incorporate visual supports into a lesson plan about [topic] for students with [specific needs]. What visuals would enhance their learning?"

Additional prompt topics:

- Create an image
- Provide a Link
- Summarize Content
- Create a Quiz
- Translate a Passage
- Create a student handout
- Ask AI what other suggestions it has



perplexity

OpenAI. (2024). *ChatGPT* [Large language model]. https://chatgpt.com

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AI for Multilingual Learners

Using Google Gemini & ChatGPT

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AI CAN TRANSLATE!!

For translation and read aloud

1. Upload a document or paste text to have AI translate into desired language. * consider asking AI to simplify for student and generate and describe images.

2. Have a conversation with AI in your native language and ask it to translate. On next prompt, ask if it can respond in both English and the desired language [Spanish/Creole/ETC].

3. Press the play button to hear AI speak the text (tip: you can change the voices in settings).

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AI Tools for UDL & Inclusive Education for ML

Tool	Classroom Use	Example	Activity
ChatGPT	Collaborative problem-solving, multilingual translation, simplifying complex texts	Ask ChatGPT to generate a summary in different languages for MLL students	Activity: Have students work in groups to solve a complex problem. Use ChatGPT to translate the problem statement and potential solutions into different languages.
MagicSchool.AI	Suggest accommodations for MLLs, generate graphic organizers	Adapting a writing assignment for MLL students using visual aids and sentence starters	Activity: Use MagicSchool.AI to generate a graphic organizer for a writing assignment. Provide ML students with visual cues and sentence starters to support their writing.
Canva	Creating multilingual visuals, infographics, and lesson aids	Design a poster or infographic that supports MLLs with text in multiple languages	Activity: Have students create a multilingual poster or infographic using Canva. They can choose a topic related to their cultural background and include text and images in multiple languages.
Gemini	Research topics in different languages, lesson adaptations for MLLs	Generate a lesson summary in both English and another relevant language	Activity: Use Gemini to research a topic in different languages. Create a lesson summary that includes key points in both English and the target language.
Padlet	Collaborative Idea Sharing & Visual Creations	Create a wall using their native languages and have students include information about their culture, interests, or goals.	Activity: Use Padlet to create a multilingual classroom wall. Students can add notes, images, and videos in different languages to share their ideas and experiences.

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ANY QUESTIONS OR THOUGHTS?

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Resources

- ChatGPT*
- Google Gemini*
- Canva - consent for students under 13
- Hey Gen
- Padlet
- Magic School
- NotebookLM
- CoPilot
- Diffit
- Brisk
- Natural Reader
- AI Song Generator
- Claude.ai
- We Are Teachers AI Prompts

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