Artificial Intelligence

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Agenda

What is it?

How does it work?

Where is it going?

What does this mean for us in education?

Ways to avoid/use AI in the classroom.

Ways to use AI in your current role.

This is why it is important.

Introduction

- LITTLE KNOWN FACT

- Artificial Intelligence has been around since the 60's. Remember the first computer that could beat a human player at chess?

AI - What is it?

Rule – Based AI (60's) 1st Generation
Didn't work very well. Only as good as the "rules" that were given.

2nd Generation "Context-Based AI"
Siri, Google Assistant, Alexa, Amazon, etc.

Uses the surrounding environment to make predictions. Makes "informed decisions".

Predicts user needs based on data.

3rd Generation "Narrow-Domain AI"
Stock Market, Weather, Elections, Healthcare, Insurance, etc.

Master Specific Tasks through algorithms

IBM Watson used in the medical field. Can comb through data quickly and efficiently to make informed decisions and predictions.

Cognitive Computing (TODAY) 4th Gen "Reasoning AI"
Understanding pictures, language, audio, and video.

Language Models & Autonomous Vehicles

6th Gen Super Intelligent AI

Has the ability to improve, evolve, and adapt without any human input.

Exponential Growth

**WHAT'S NEXT???? 5th Gen
Artificial General Intelligence**
Performs any task a human can do – a million times faster.
The system is autonomous. REASONING

Yes, there's more!

7th Gen – Self-Aware AI
Use quantum algorithms to <u>simulate human consciousness</u>.

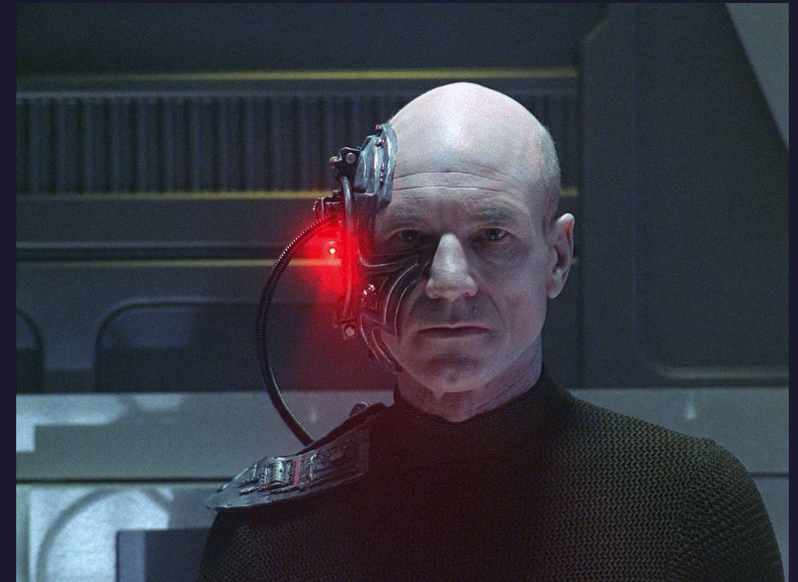**8th Gen – Transcendent AI**
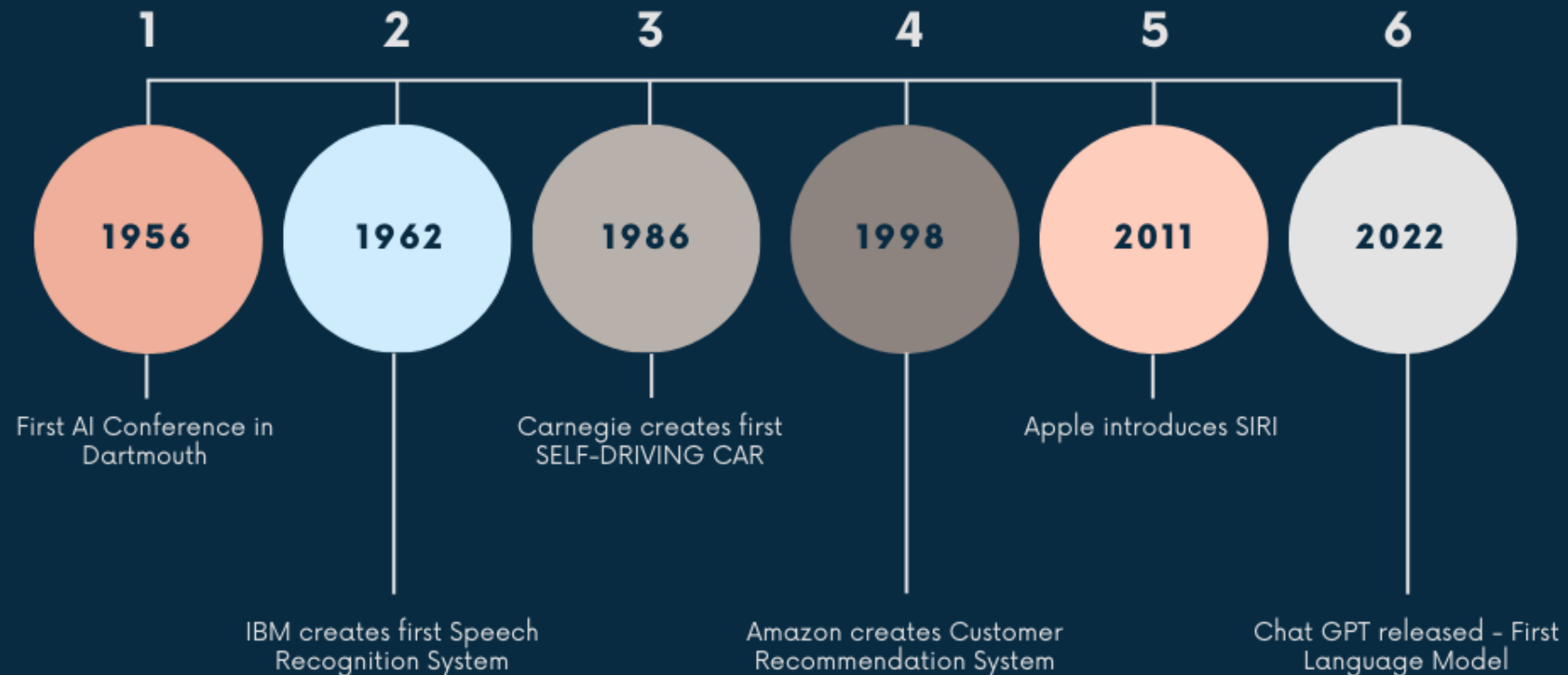Could <u>create new lifeforms</u> (biological, digital, or ?")

9th Gen – Cosmic AI
Interstellar exploration
Understands everything from the quantum to cosmic scale

Sounds Star Trek-ish

AI TIMELINE

| 1 | 2 | 3 | 4 | 5 | 6 |

1956 — First AI Conference in Dartmouth

1962 — IBM creates first Speech Recognition System

1986 — Carnegie creates first SELF-DRIVING CAR

1998 — Amazon creates Customer Recommendation System

2011 — Apple introduces SIRI

2022 — Chat GPT released – First Language Model

I am asked this all the time-
Will AI replace humans?

Not necessarily.

But AI will replace repetitive jobs.

People who USE AI will replace people who
DO NOT USE AI.

Where is this going in 2024 & 2025?

- More self-driving vehicles – not just Tesla vehicles. (28)

- More AUTONOMOUS vehicles. (Think delivery services.)

- Extended cloud computing.

- BCI's – Brain-Computer Interfaces

- Enhanced 3D Printing (operational efficiency)

- More BIOMETRIC Technology. *72% of companies are planning to ditch passwords in the next two years. (Flipper)

- Virtual & Augmented Reality. Education and healthcare.

- Edge Computing, Cloud Computing, and 5G connectivity.

- AI in Cybersecurity – Ryan Montgomery (Pentester.com)

- Quantum computing expansion (QAI)

- Robotics – enhanced for language as well.

- LLM's will become LAM's (Large Action Models)

AI in Healthcare

Hippocratic's AI

Has already passes 100+ exams including

Pharmacist License Exam
RN Exam
Acute Care Nurse Practitioner Exam
Certified Professional Coder Exam
Obstetrics & Gynecology Exam
Urology Licensing Exam
Hospital Safety Training Exam
Registered Dietician Exam
Lactation Consultant
Health Compliance Officer
USMLE

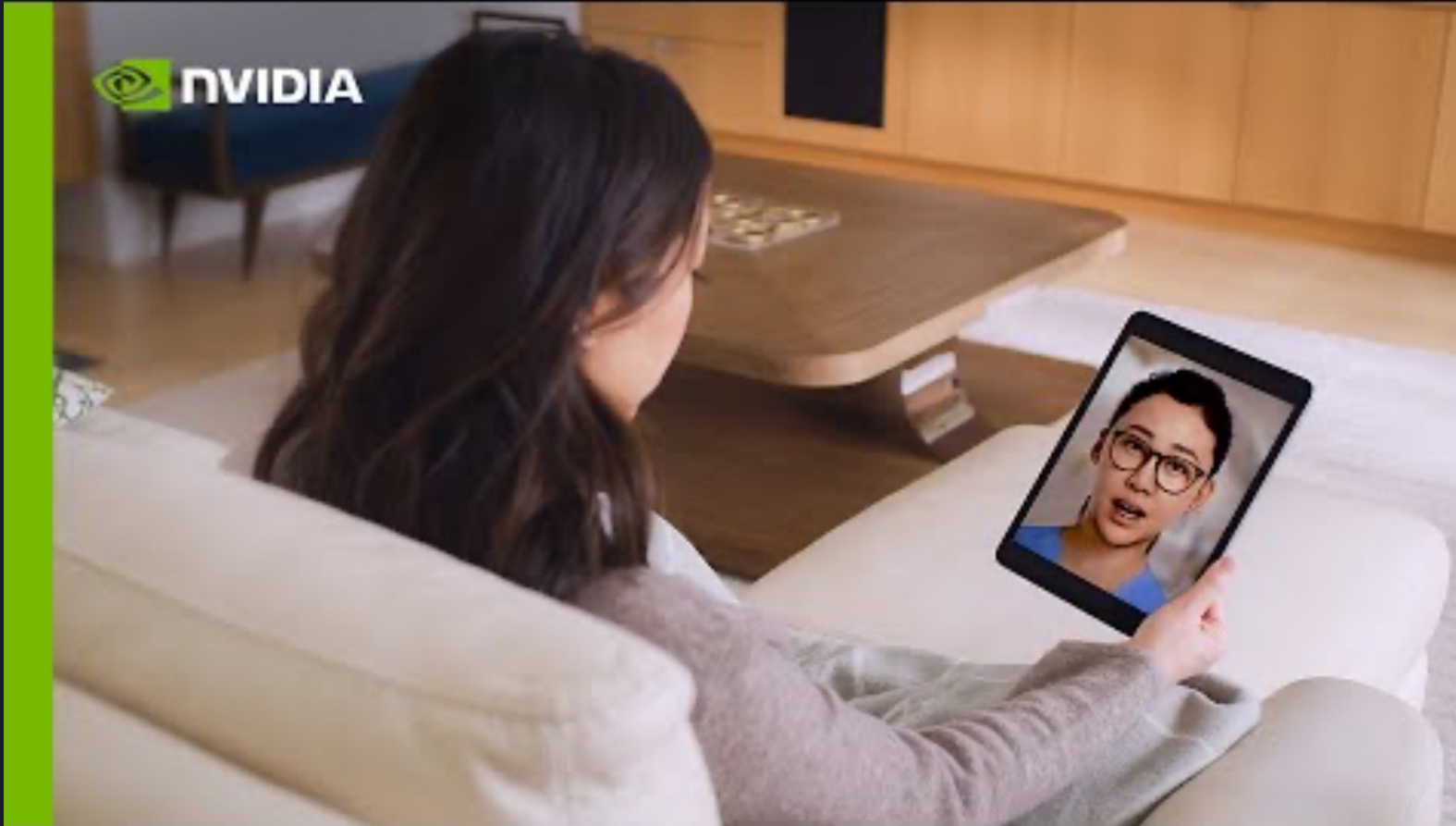Created their own LLM for this purpose focusing on detecting "tone" and communicating empathy.
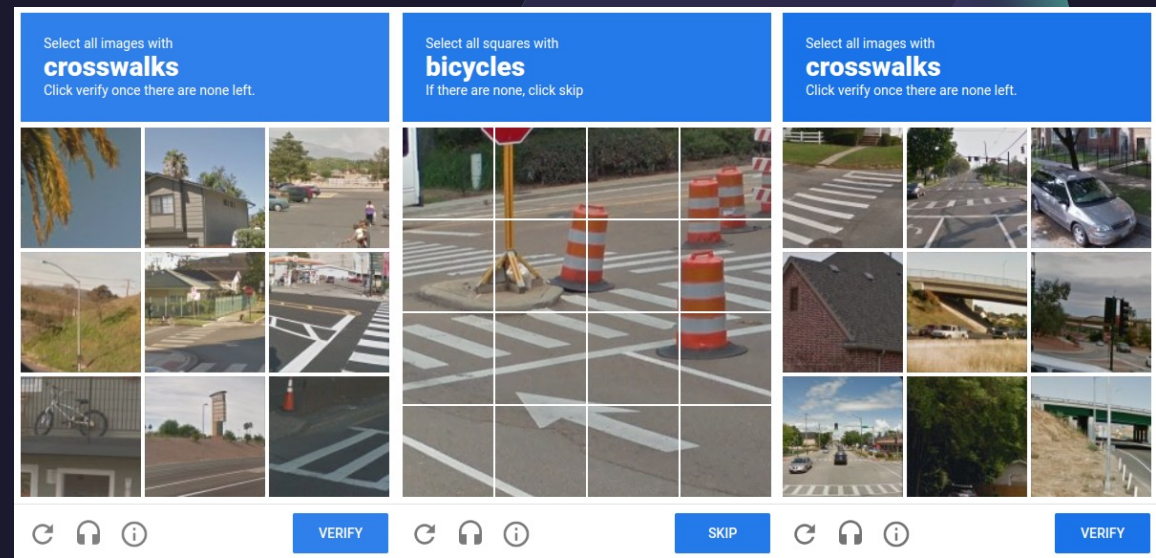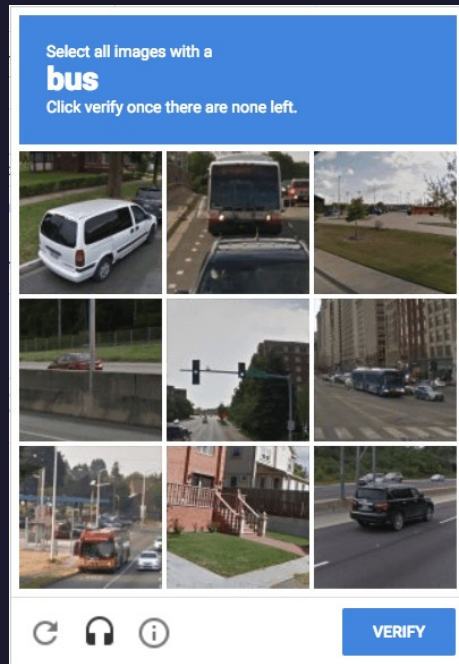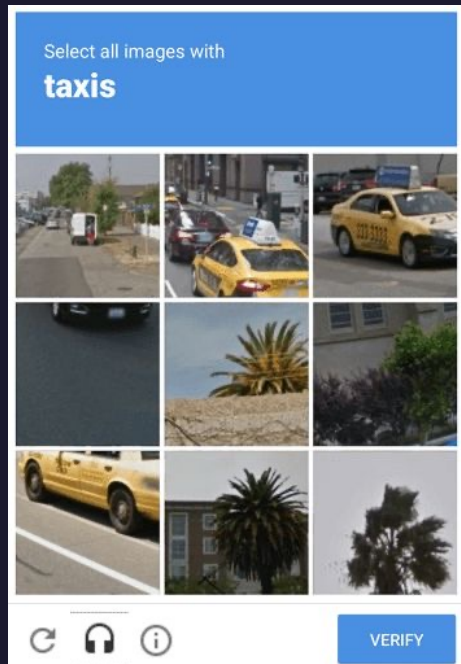
FIGURE 1 ROBOT

Little Known Fact...

YOU have been training AI to use images for YEARS.

*This wasn't the initial "intent" of using CAPTCHA, but this is the data being used to train these models on pictures and video.

Let's Take A Moment to Discuss...

What do you think this means for you moving forward?

You can now download and <u>build your own!</u>

http://huggingface.co
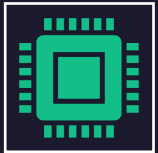
EXAMPLE:

Llama2 - Made by META (Facebook)

Llama2 took l.7 Million GPU Hours to train!
A cost of **$20 Million**.

Now, it's free to you to download and use. No internet needed. (think security)

VMWare if you are going
to TRAIN the model.

How does AI (like ChatGPT) work?

Encoding – Taking sentences and breaking them down into numbers. Those numbers are entered into the computer system. **Probabilities** determine the outputs.

GPT-3.5 Neural Network - This network is built just like the brain. It creates new pathways as it receives feedback.

GPT4 is available   (paid version) with *add ons

This service is NOT free. They USE your feedback to make the program better.

What does that mean for us in EDUCATION?

THIS IS MACHINE LEARNING

- The system gets better with time.

- The responses given will change quickly and often.

- The programs used to identify AI writing samples will eventually fail – sooner rather than later.

AS SCHOOLS, WE HAVE THREE OPTIONS

- Try to BLOCK it at every turn. Computers, School Networks, etc.

- Try to CATCH it using other programs. This may work in the short term.

- USE it within the classrooms by being intelligent with our classroom design.

How do we mitigate this? (now)

1. ASK STUDENTS TO WRITE ABOUT SOMETHING PERSONAL.

2. USE "PROJECT-BASED" LEARNING – NOT JUST WRITING.

3. USE CHATGPT AND OTHERS WITHIN THE CLASSROOMS. LET THEM SEE IT AND USE IT.   WEAVE IT INTO CURRENT LESSONS. ADD A "TROJAN HORSE".

4. ASK STUDENTS TO WRITE ABOUT A RECENT EVENT OUTSIDE OF THE NEWS.

5. HAVE STUDENTS SHOW THEIR WORK.

6. USE ASSIGNMENTS THAT REVOLVE AROUND THE LOCAL COMMUNITY.

7. ORAL PRESENTATIONS ALONG WITH WRITTEN WORK.

8. HAND-WRITE ESSAYS IN CLASS. IT'S A SIMPLE SOLUTION.

OTHER AI PROGRAMS ACROSS THE WORLD

Made by MICROSOFT
Microsoft Bing AI
DialoGPT
Megatron

Made by GOOGLE
GEMINI – Brand New
Bard AI
LaMDA
Socratic
Compose AI (extension)

WRITING
ChatSonic
Jasper Chat
OpenAI Playground

CODING
CoPilot
Tabnine
Amazon Codewhisperer

TRANSLATION
Elsa Speak
Bloom
DeepL Write

RESEARCH
YouChat
Perplexity
Elicit

CONVERSATION
Chinchilla
Replika
Character AI

COLLEGE USERS PREFER
Caktus – Lots of options here

INTERNATIONAL (China)
Momenta   Cloudwalk
Baidu   Cambricon
Ubtech   SenseTime

OTHER
Samsung – South Korea
SAP SE – Germany
SCAI – Saudi Arabia

Where are we?

*Estimates
ChatGPT 3.5   IQ 122
ChatGPT 4.0 (Paid)   IQ 135 Exposed to 630 BN
Claude3 (3/1 rel.)   IQ 118
Bard   IQ 120

ChatGPT 5.0 (SORA) Release in 2025
IQ Est. 160
*addition of Multi-Modality
The AI is literate in multiple types of data.

CRITERIA	CHATGPT 3.5	CHATGPT 4	CLAUDE 2	BARD
Cost	Free	$20/month	Free	Free
Token Limit	16,000 (Roughly 9,000 words)	8,192 (Roughly 6,000 words)	100,000 (Roughly 75,000 words)	Unknown
Web Browsing	N/A	Yes (With Plugins)	N/A	Yes
Summarizing Long Content	👍	Yes (With Plugins)	Yes	N/A
Image Recognition	N/A	Yes (Inaccurate)	N/A	Yes (Inaccurate)
Data Analysis	Yes (Copy & Paste Text)	Yes	Yes	Yes (Copy & Paste Text)
Creativity	2nd Best	Best	3rd Best	Worst
Coding (Simple HTML/CSS)	Yes	Yes	Yes	Yes
Accuracy	Least	Tie For Second	Tie for Second	Most
Availability	163 Countries	163 Countries	US & UK Only	230 Countries

AI is ALREADY built into Gmail and Slides.

AI is ALREADY built into text prediction on your computer and phone.

AI was added to the **Microsoft Suite** in November of 2023. (co-pilot). This is now functional with most personal and business applications.

SORA – OPENAI

BECOME A POWER USER

6 Inputs To Remember

1. TASK
2. CONTEXT
3. EXEMPLAR
4. PERSONA
5. FORMAT/CONDITIONS
6. TONE/EMPHASIS

NECESSARY

↕

OPTIONAL

EXAMPLE

I am a 200 lb male looking to put on 10 lbs of muscle over the next 3 months.

I only have time to go to the gym twice a week for an hour each session.

You are an award-winning fitness and nutrition expert.

Give me a 3-month training plan to follow that will accomplish my goals.

Put this plan into a chart for me.

Become a POWER user part 2
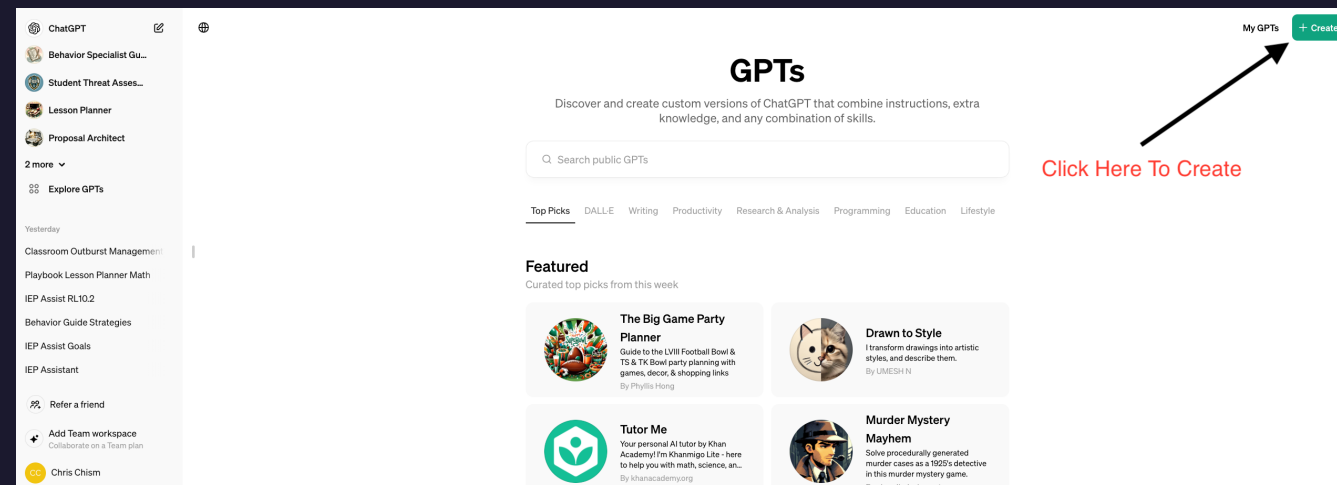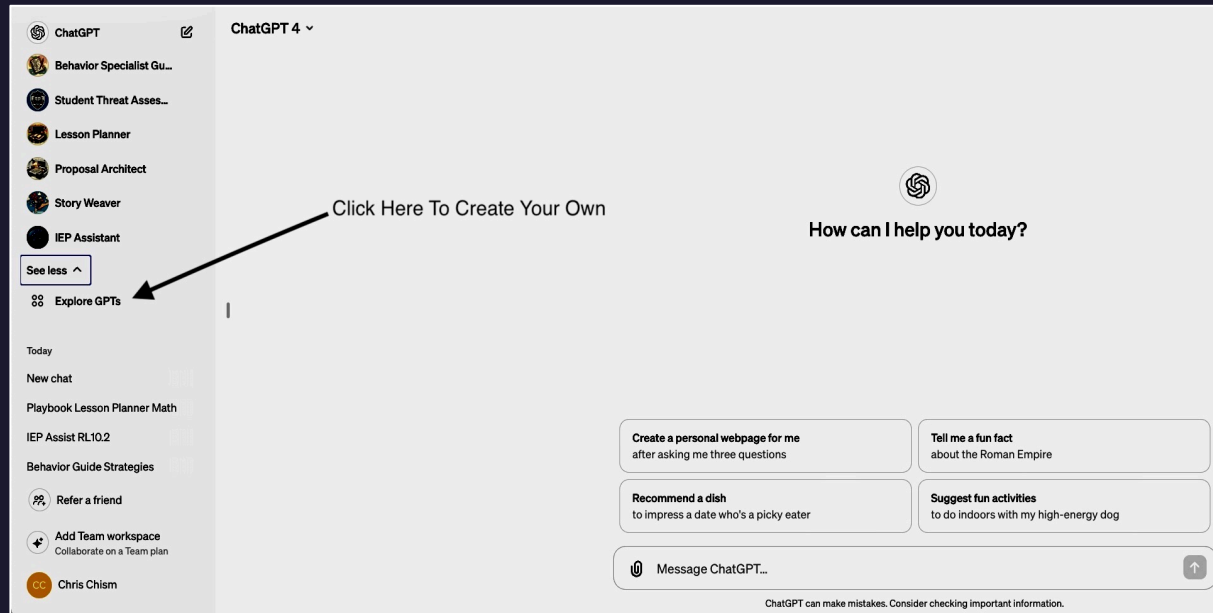
1 Click YOUR NAME

2 Click CUSTOMIZE CHATGPT

3 Give your BACKGROUND

4 Request your RESPONSE TYPE

POWER user Part 3 – Build Your OWN

Click Here To Create Your Own

Click Here To Create

USE BRACKETS & CHOOSE YOUR STYLE

[Voice and style guide: Write at a 5th grade level. Use clear and concise language, even when explaining complex topics. Bias toward short sentences. Avoid jargon and acronyms.] INSERT PROMPT

[Format your response using markdown. Use headings, subheadings, bullet points, and bold to organize the information.] INSERT PROMPT

[Voice and style guide: Make use of persuasive tone, making use of rhetorical questions and storytelling to engage readers. Use metaphors, analogies and other literary devices to make more relatable and memorable. Write in a way that is both informative and entertaining.] INSERT PROMPT

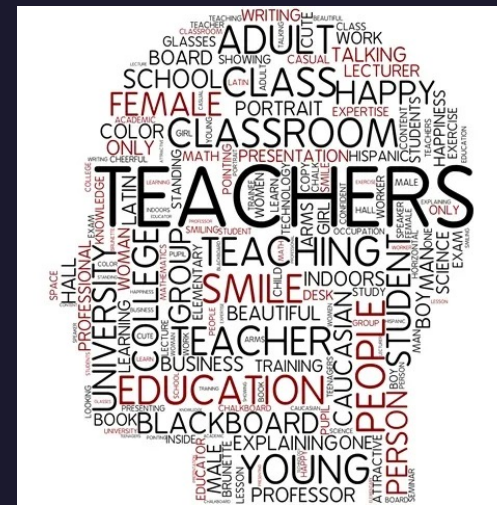[Write in the style of Mark Twain] INSERT PROMPT

Superintendent

- Creating Board Policy with Formatting
- Interpreting & Simplifying Laws
- Writing LOR's
- Writing Termination Letters
- Use for Social Media Posts (including popular language)
- Creating Questions for Meetings
- Scripting Agendas
- Generating Ideas for any number of events/meetings/subjects
- **Editing** emails, documents, newsletters, etc.
- Converting Language
- *Statistical Testing
- *Generating Graphs, Charts, & Comparisons
- Grant Writing
- Compliance Reports (MDE & Federal)
- RFP Drafting
- Contract Review
- Contract Negotiation
- Contract Counter-Offer Writing
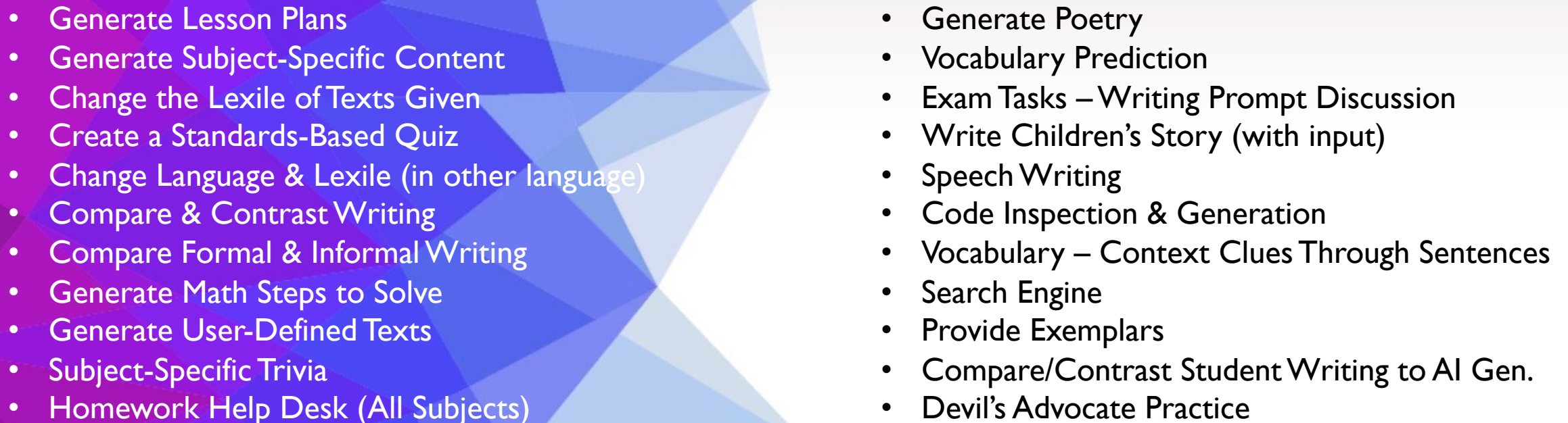- Generate CODE for Excel (VBA)

PRINCIPALS

- Interpret Board Policy
- Simplify Legal Documents (Divorce Decrees, SPED Law, Orders of Protection)
- Use LIVE during IEP and/or Parent Meetings
- Parent Meeting Preparation
- Email Responses – Check for grammar and adjust tone.
- Writing Letters of Recommendation
- Generate Classroom Ideas
- Generate Ideas for School Improvement
- Generate Verbiage for Teacher Improvement Plans
- Generate Teacher/Student Write-Ups
- *Statistical Testing (T-Tests, ANOVA, Correlation, & Descriptive Statistics)
- Powerful and Precise Search Engine
- Budget Proposals
- Outreach Letters
- Consent Forms
- Volunteer Agreements
- Generate CODE for Excel (VBA)

TEACHERS

- Generate Lesson Plans
- Generate Subject-Specific Content
- Change the Lexile of Texts Given
- Create a Standards-Based Quiz
- Change Language & Lexile (in other language)
- Compare & Contrast Writing
- Compare Formal & Informal Writing
- Generate Math Steps to Solve
- Generate User-Defined Texts
- Subject-Specific Trivia
- Homework Help Desk (All Subjects)

- Generate Poetry
- Vocabulary Prediction
- Exam Tasks – Writing Prompt Discussion
- Write Children's Story (with input)
- Speech Writing
- Code Inspection & Generation
- Vocabulary – Context Clues Through Sentences
- Search Engine
- Provide Exemplars
- Compare/Contrast Student Writing to AI Gen.
- Devil's Advocate Practice

STUDENTS

AT School

Homework Help: Using ChatGPT to understand complex topics or to get help with homework assignments.

Writing Assistance: For essay assignments or creative writing projects, ChatGPT could help brainstorm ideas, outline topics, or even provide tips on improving writing style.

Study Groups: Coordinate virtual study groups where ChatGPT can assist with Q&A, providing succinct explanations or facilitating debates.

Programming Help: If a student is into coding, they could consult ChatGPT for troubleshooting issues or understanding programming concepts.

Language Learning: ChatGPT could be an excellent tool for practicing conversational language skills.

Current Events: Students could ask the AI for summaries of current events related to their courses, helping them stay updated and engaged.

Mock Interviews: For a class presentation or job interview prep, ChatGPT could act as the interviewer, asking relevant questions that the student might face.

Math Problems: ChatGPT can assist in solving math problems or explaining math concepts, which would be especially helpful in studying for tests.

Science Projects: For experimental design or understanding scientific principles, students could use ChatGPT as a brainstorming tool.

Student Government: Use ChatGPT to draft speeches, come up with fundraising ideas, or strategize on school improvements.

Class Presentations: Could use ChatGPT to practice presentations and get feedback on clarity, coverage, and delivery.

AT Home

Personal Blogging: Use ChatGPT for content suggestions, drafting, and editing of blog posts.

Game Strategy: If they're into gaming, ChatGPT can help discuss strategies for complex video games and/or other types of games.

Personal Projects: For hobbies like coding or writing, ChatGPT can be a great sounding board for ideas.

Learning New Skills: From cooking to playing a new instrument, ChatGPT can provide step-by-step guidance or resources.

Career Research: For high school students thinking about college majors or career paths, ChatGPT can provide insights into various fields.

Social Issues: Use ChatGPT as a tool for researching and understanding various viewpoints on social or political issues they care about.

Online Safety: Learn best practices for staying safe online, identifying reliable sources, and avoiding misinformation.

Book Recommendations: For leisure reading or for academic purposes, ChatGPT can suggest a wide variety of books based on the student's interests.

Fitness: ChatGPT can help formulate basic workout plans or explain the science behind different types of exercise.

Budgeting: Learn about basic financial literacy, like how to set up a budget, save money, or understand investing at a rudimentary level.

Build Resume': This is a great start for college and career.

Let's Take A Moment to Discuss...

1. What QUESTION(s) does this raise for you?

2. Is there something that you FEAR after hearing this discussion?

3. Is there something that EXCITES you about AI?

Let's try a few...

VAGUE vs. SPECIFIC

AT YOUR TABLES
One Person - Engineer a vague prompt – single sentence.
Everyone else – Engineer a prompt with CONTEXT.

Take 10 minutes to add your prompts.
Take 15 minutes to discuss your answers and outputs.

STUDENTS

Let's try planning a school event. Prom? Improving Study Habits? New School Club?

SCHOOL LEADERS/ADVISORS

Let's try one of these - Reducing tardiness, improving teacher morale, enhancing parental involvement.

A Few More...

ETHICAL IMPLICATIONS

PICK A PARTNER – PICK A TOPIC

AI For Personalized Learning

5 MINUTES TO PREPARE A PROMPT – NO DISCUSSION
10 MINUTES TO DISCUSS/COMPARE PROMPT TO OUTPUT

"Using AI to create personalized learning plans for students is beneficial and should be implemented in all schools to cater to individual learning needs. However, it raises concerns about privacy and the potential for data misuse."

AI In Student Assessment

"AI can grade student assignments and exams more efficiently and objectively than human teachers. This approach should be widely adopted to save time and reduce teacher bias."

AI As A Tool For Educational Equity

"AI has the potential to bridge the educational equity gap by providing high-quality, accessible learning resources to underprivileged students. However, the digital divide means that not all students have equal access to these technologies."