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AI TOOLS & RESOURCES FOR TEACHERS



Med Kharbach, PhD

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Author's Note

Over the past six months, I have poured a tremendous amount of time into reading, researching, and writing a wide variety of resources on AI in education. These guides, toolkits, and reflections are designed for teachers, school leaders, and researchers who want to make sense of AI and put it to meaningful use in classrooms and professional practice. All of this work is shared free of charge. Why?























Because I am an educator first. After more than twelve years of teaching across K–12 settings, I know the hard work teachers do, and I also know the frustration that comes when professional development around new technologies feels rushed or disconnected from daily classroom realities.

The interest has been overwhelming. I have received countless requests for AI tool recommendations, lesson ideas, and policy guidance. Rather than placing this knowledge behind a paywall, I wanted to make it open to everyone. What has kept me motivated are the messages from teachers around the world—from Singapore to Marrakech—sharing how these resources have supported them and, in turn, their students. Those stories confirm that the many hours of preparation and careful research have been worth it.

Best AI Tools for The New School Year



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 <p>Chatbots</p>	<p>ChatGPT/Claude/Gemini/Perplexity Use them to brainstorm lessons, generate practice questions, draft rubrics, and summarize articles</p>	 <p>Poe</p>	<p>A platform that gives you access to multiple AI models (including Claude, GPT-4, and others) in one place, making it easy to compare responses.</p>
 <p>Napkin AI</p>	<p>Turns messy notes, text, or data into clean visuals like flowcharts, mind maps, and infographics</p>	 <p>FigJam</p>	<p>A collaborative whiteboard by Figma where students and teachers can brainstorm, map ideas, and co-create projects in real time.</p>
 <p>Canva</p>	<p>Best teacher-friendly design tool out there. Use to create posters, presentations, charts, interactive worksheets, and more</p>	 <p>Snorkl</p>	<p>A tool that captures students' thought processes through audio explanations, giving teachers deeper insight into reasoning and making formative assessment easier.</p>
 <p>Quizizz AI</p>	<p>Best creating AI-generated practice questions, adaptive quizzes, and gamified assessments.</p>	 <p>Padlet</p>	<p>A collaborative online board where teachers and students can post notes, images, videos, or links to brainstorm, share resources, and build projects together.</p>
 <p>Brisk Teaching</p>	<p>Makes it easy to create lesson plans, resources, Google Form quizzes, exemplars, and so much more.</p>	 <p>MyLens</p>	<p>An AI-powered tool that helps you visualize your ideas and content through interactive visuals.</p>
 <p>MagicSchool</p>	<p>Offers dozens of AI tools for lesson planning, rubric creation, IEP support, parent communication, and more.</p>	 <p>ElevenLabs</p>	<p>A text-to-speech tool that generates realistic voices, useful for creating audio versions of lessons, accessibility supports, or storytelling activities.</p>
 <p>Eduaide</p>	<p>A versatile planning assistant that generates lesson ideas, assessments, feedback, and enrichment activities</p>	 <p>Synthesia AI</p>	<p>Creates professional-looking instructional videos with AI avatars and voiceovers, making it easy to produce explainer content without needing cameras or editing skills.</p>
 <p>School AI</p>	<p>Easily tailor teaching plans and more, automatically aligned with standards and objectives. Personalize learning in real-time</p>	 <p>Twee</p>	<p>Twee generates warm-up questions, texts, vocabulary activities, and discussion prompts for engaging language lessons.</p>
 <p>NotebookLM</p>	<p>A research assistant from Google that lets you upload documents and then ask questions, generate summaries, or build outlines directly from your sources.</p>	 <p>Diffit</p>	<p>Quickly transforms any text into multiple reading levels, summaries, and comprehension questions</p>
 <p>Curipod</p>	<p>Lets teachers create interactive lessons, polls, and presentations in seconds, turning static content into engaging, student-driven learning experiences.</p>	 <p>Slidesgo</p>	<p>Provides ready-made, customizable slide templates teachers can adapt for lessons, presentations, or student projects</p>
 <p>TeachAid</p>	<p>Helps create adapted materials and supports teachers in designing resources that meet diverse learning needs.</p>	 <p>Khanmigo</p>	<p>Helps students with personalized tutoring and gives teachers lesson support, grading help, and class management insights.</p>

AI Tools to Boost Teacher Workflow



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Lesson Planning



MagicSchool



Curipod



Eduaide



Twee



Almanack



Diffit



Teaching Materials



Diffit



Khanmigo



NotebookLM



Quill



ChatGPT
Study Mode



Edcafe



Assessment



Writable



School AI



Quizizz



MagicSchool



Scribbr



Quizlet



Productivity



Reclaim AI



TeachMate



Brisk Teaching



Notion



Otter.ai



Perplexity



Creativity



AITutor.AI



D-ID.com



Fireflies



Ideogram



Elevenlabs



Slidesgo



NapkinAI

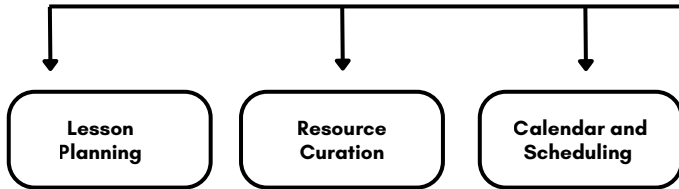


TOP

Productivity Tools for Teachers

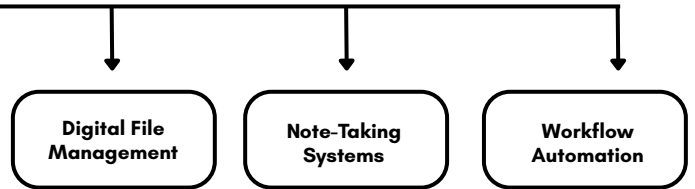
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Planning Tools



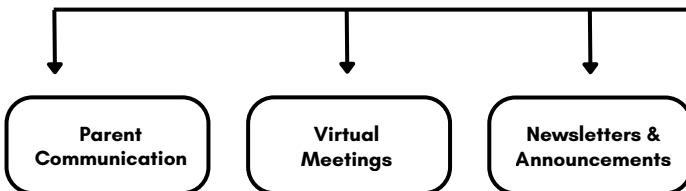
- ChatGPT
- MagicSchool
- Eduaide
- Wakelet
- Flipboard
- Instapaper
- Google Calendar
- Calendly
- Trello

Organization Tools



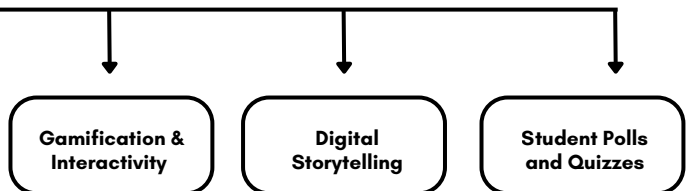
- Google Drive
- OneDrive
- Dropbox
- Obsidian
- Notion
- Evernote
- Zapier
- Asana
- Monday.com

Communication Tools



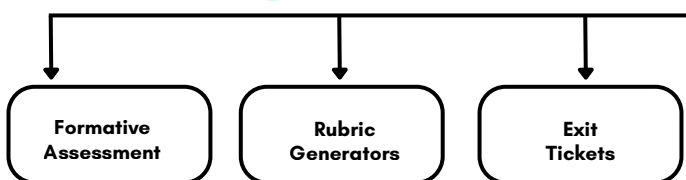
- Remind
- ClassDojo
- Google Classroom
- Zoom
- Google Meet
- Microsoft Teams
- Canva
- PiktoChart
- Freepik

Engagement Tools



- Kahoot
- Quizizz
- Socrative
- ChatGPT
- Canva
- StoryboardThat
- Plickers
- Mentimeter
- Google Forms

Assessment Tools



- Quizlet
- Socrative
- Gimkit
- Canva
- Eduaide
- Brisk Teaching
- Google Forms
- Quizalize
- Quizizz

Professional Development



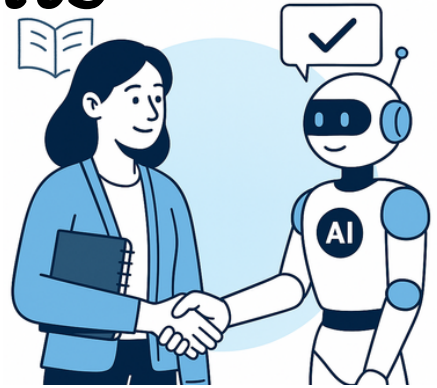
- LinkedIn
- X(Twitter)
- Facebook Groups
- Coursera
- Skillshare
- TED
- Google Docs
- Notion
- Journal App

24

Best AI Teaching Assistants

By Kharbach Med, PhD

www.educatorstechnology.com



What is An AI Teaching Assistant?

It is An AI-powered platform that helps teachers with a wide variety of tasks such as lesson planning, grading, content creation, student feedback, and classroom management. It also streamlines routine work, offers real-time support, and enhances instruction through automation, personalization, or conversational interaction.

AI Chatbots



Ideal for planning, feedback, explanations, and quick classroom ideation.

Monica



All-in-one AI assistant for writing, coding, and research—right in your browser.

Brisk teaching



Chrome tool for instant lesson plans, quizzes, and feedback inside Google Docs

MagicSchool AI



Teacher-first platform that creates plans, rubrics, and accommodations in seconds.

Twee



Quickly generates EFL lessons, prompts, and discussions with minimal input.

Khanmigo



Khan Academy's AI assistant for rubrics, hooks, assessments, and student help.

Eduaide



Lesson planning and resource generation tailored to classroom differentiation.

TeacherMatic



Automates admin work: quizzes, lessons, and assessments—so you can teach.

Notion AI



Built into Notion for quick brainstorming, summarizing, and lesson structuring.

Ideogram



Turns text prompts into sharp, classroom-ready visuals.

Diffit



Instantly turns any content into leveled readings, questions, and activities.

Canva



Create slides, worksheets, and visuals fast with built-in AI design tools.

Curipod



Turns any topic into interactive slides with polls, prompts, and visuals.

NotebookLM



Summarizes, explains, and quizzes from your docs—like a custom tutor.

School AI



AI assistant for students, staff, and admins, handles Q&A, scheduling, and more.

Quizizz



Gamified quizzes and interactive lessons that make assessment engaging and fun.

Text Blaze



Create smart text templates to eliminate repetitive typing and automate responses with precision.

TeachMate AI



Teacher-designed assistant that streamlines prep, planning, and feedback

Snorkl



Grades spoken, handwritten, and drawn student responses.

Almanack



Generates full lesson plans with slides, worksheets, and custom activities in minutes.

Edcafe



Builds student-centered discussion activities to spark collaboration and critical thinking.

Flint AI



Custom AI tutors and assessors that adapt to your learning objectives and materials.

Class Companion



AI tutoring & instant feedback on student work, supports retakes & boosts engagement.

Conker



Create standards-aligned quizzes instantly

Best AI Tools for PhD Students



Doing a PhD is a marathon, not a sprint. Here are some AI tools that can help you stay organized, productive, and focused!



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1

Build a Networked Note-Taking System



Don't scatter your ideas across random files. Use tools that let you build a connected knowledge network:

Obsidian



Notion



2

Manage Your References Like a Pro



Don't repeat my mistake of leaving references to the last minute. Organize from the start:

Zotero



Endnote



Mendeley



3

Master the Art of Literature Search



Don't waste hours hunting for papers. Use these tools to dig deeper and find what really matters:

ResearchRabbit



Scite



Librarians



Connected Papers



4

Active Reading for Deep Understanding



Don't just skim, read with purpose. Use these tools to synthesize ideas and make deeper connections:

NotebookLM



Elicit



Consensus



ChatGPT



5

Write with Clarity and Precision



When it's time to write, don't let a blank page slow you down. Use these tools to draft, polish, and refine your work:

ChatGPT
Claude



Google
Docs



Paperpal



Jenni



AI-Powered Presentation

Tools For Teachers



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Start with a plan,

Paste your lesson into tools like Curipod or Gamma. They'll auto-generate a slide deck structure.

Control slide structure

Specify how many slides and what types (title, content, quiz).

Add your own activities

Insert tasks, reflections, or partner work. AI won't know your teaching flow

Export and edit

Download slides into Google Slides or PowerPoint for last-minute tweaks.

Refine text for your class

Edit vocabulary and tone to match your students' level and your teaching style.

Use AI slides as lesson kickstarters

Even partial decks can inspire discussions or complement your existing materials.

AI
Presentation
Tips

www.educatorstechnology.com

Keep one reusable prompt

Save a general prompt format (e.g., "Create a 6-slide presentation for Grade 5 on [topic], include visuals, 1 quiz slide, and student-friendly language") and just swap topics.



Curripod

Transform your lessons into interactive slides with AI.



Brisk Teaching

Generate presentations directly from online content and videos.

AI-Powered Presentation Tools



Almanack

Create slide decks with images from URLs, files, or videos.



Google Slides

Create and collaborate on presentations in real time; integrates with Docs, Drive, and AI-powered add-ons.



Canva

Design visually appealing slides effortlessly.



MagicSlides

Convert YouTube videos, PDFs, and more into PowerPoint presentations.



Gamma

Generate sleek, modern presentations from outlines using AI; excellent for storytelling and reports.



Beautiful AI

Create clean, professional presentations with AI-assisted design logic.



Visme

Build engaging slide decks with visuals, infographics, and AI templates.



SlidesGo

Create customized presentations with various styles and tones.



Eduaide

Generate slide outlines with ideas and check-in questions.



Diffit

Turn detailed lesson resources into interactive slides.



AI Tools to Enhance Design Thinking

Teachers Guide

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Design Thinking Process

Empathize

- Observe learners
 - Ask questions
 - Listen closely
 - Sense needs

Define

- Pinpoint the challenge
 - Spot patterns
 - Reframe the issue
 - Clarify focus

Ideate

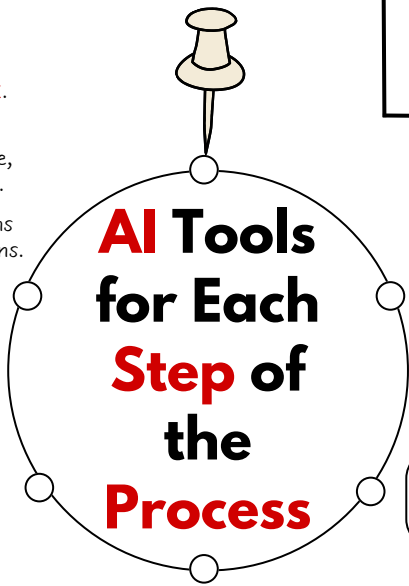
- Generate ideas
 - Explore options
 - Mix and match
 - Sketch concepts

Prototype

- Draft quickly
 - Test small
 - Tweak often
 - Keep it simple

Test & Refine

- Try it out
 - Watch closely
 - Collect feedback
 - Improve & repeat



Empathize

Use AI to better understand your students.

- Summarize student feedback or survey results using **ChatGPT** or **Google Forms + AI**.
- Ask **ChatGPT** to generate student personas based on age, background, or learning needs.
- Use **ChatGPT** to draft questions for class interviews or check-ins.

Define

Use AI to clarify what really needs fixing.

- Summarize key student struggles or misconceptions from feedback.
- Identify patterns in survey responses or class discussions with **ChatGPT** help.
- Ask **ChatGPT** to reframe the challenge from different angles.

Ideate

Use AI to spark fresh, creative ideas.

- Brainstorm lesson plans, prompts, or activities with tools like **ChatGPT** or **Claude**.
- Combine concepts from different subjects using **Perplexity AI** or **Gemini**.
- Ask AI for unexpected or offbeat ideas to challenge your thinking.

Prototype

Use AI to build quick drafts of your ideas

- Create lesson plans with tools like **MagicSchool** or **Brisk Teaching**.
- Design visuals and handouts using **Canva's** AI features.
- Mock up interactive activities with **Curipod** or generate audio with AI voice tools like **ElevenLabs**.

Test & Refine

Use AI to improve your ideas through feedback

























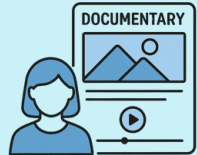





- Use tools like **Formative** or **Edpuzzle** to see how students interact with your activity in real time.
- Summarize student input using **ChatGPT**.
- Ask AI for ways to adjust or improve based on what you learn.

Digital Storytelling with AI

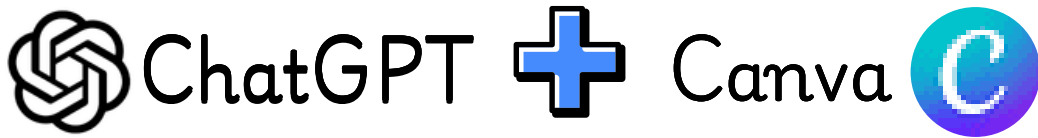
Creative Ideas for Teachers

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Med Kharbach, PhD

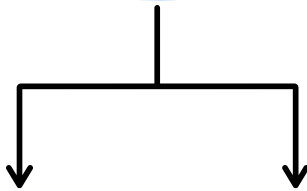
Classroom Activity	AI Tools
<h3>Write a Personal Digital Story</h3>  <p>Guide students to brainstorm a memory, write a short script with ChatGPT or Claude, then use AI to record and edit the story with visuals and voice.</p>	<ul style="list-style-type: none">  Scriptwriting: ChatGPT, Claude  Video Editing: Invideo, Descript, Veed,  Background Music: Soundraw, Epidemic Sound  Visual Creation: Canva, Adobe Express  Voiceover: ElevenLabs, Speechify
<h3>Character Diaries with AI Avatars</h3>  <p>Students write a diary entry as the character, then record a video using avatar-based AI tools. They can narrate using their own voice or synthetic voice generators.</p>	<ul style="list-style-type: none">  Scriptwriting: ChatGPT, Claude  Avatar Video: Synthesia, Heygen,  Background Music: Soundraw, Epidemic Sound  Video editing: Descript, Veed  Voiceover: ElevenLabs, Speechify
<h3>Explainer Videos for Science Concepts</h3>  <p>Students write a script explaining a scientific process, record using Loom or AI avatars, and polish the video with editing tools.</p>	<ul style="list-style-type: none">  Scriptwriting: ChatGPT, Claude  Recording: Loom, Synthesia, Heygen  Background Music: Soundraw, Epidemic Sound  Video editing: Invideo, Veed, Camtasia  Voiceover: ElevenLabs, Murf AI
<h3>Reenact a Historical Event</h3>  <p>Let students pick a character or role in a historical event, script their narrative, and use AI to turn it into a story-driven video.</p>	<ul style="list-style-type: none">  Scriptwriting: ChatGPT, Claude  Video creation: Pictory AI, Synthesia  Background Music: Soundraw, Epidemic Sound  Video editing: Descript, Veed  Voiceover: ElevenLabs, Speechify
<h3>Project-Based Learning Documentary</h3>  <p>Students work on a project, they gather visuals and reflections. At the end, they assemble everything into a documentary-style video.</p>	<ul style="list-style-type: none">  Scriptwriting: ChatGPT, Claude  Voiceover: ElevenLabs, Speechify  Background Music: Soundraw, Epidemic Sound  Video editing: Invideo, Canva  Video creation: Pictory AI, Loom

Creating Teacher Rubrics



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Rubric Types

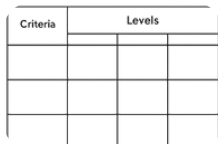


Analytic



Uses a single scale to assess overall performance, with paragraph-style descriptions combining all criteria into one judgment.

Holistic



Breaks down performance into specific criteria scored separately, usually presented in a grid format with levels of achievement across the top.

What is a Rubric?

A rubric is a scoring tool that lists specific criteria for an assignment and describes different levels of performance for each one.

Benefits of Rubrics

- Clarify expectations
- Guide student work
- Support fair grading
- Provide structured feedback
- Save grading time
- Encourage self-assessment

Using AI to Build Rubrics

- Generate criteria ideas
- Write level descriptions
- Adapt tone and style
- Customize for different tasks
- Edit for clarity
- Organize into a table or list

Practical Tips

- Always review and adjust AI-generated rubrics to fit your grading criteria.
- Keep language consistent to avoid confusing students.
- Use Canva templates to quickly design worksheets or posters.
- Add icons, colors, and sections in Canva for better readability.

Sample Prompt

Create a detailed assessment rubric for a middle school persuasive essay. The rubric should have four main categories: Ideas and Content, Organization and Structure, Language and Style, and Grammar and Mechanics.

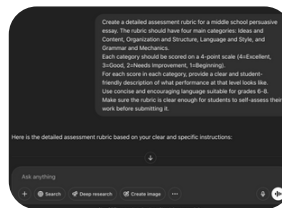
Each category should be scored on a 4-point scale (4=Excellent, 3=Good, 2=Needs Improvement, 1=Beginning).

For each score in each category, provide a clear and student-friendly description of what performance at that level looks like.

Use concise and encouraging language suitable for grades 6-8. Make sure the rubric is clear enough for students to self-assess their work before submitting it.

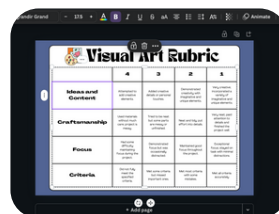
Process

1



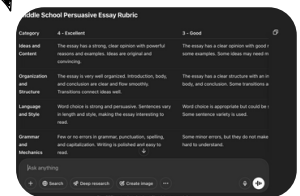
Go to ChatGPT and write a detailed prompt.

4



Select a template, add your text, edit it to your liking!

2



Once generated, further edit & tweak the rubric.

3



Go to Canva and search for Rubrics

Top AI Tools to Design Classroom Visuals

www.educatorstechnology.com

Canva AI

Canva's Text to Image tool transforms your text prompts into unique, customizable visuals

ChatGPT

Create stunning visuals with seamless ChatGPT integration and editing tools.

Midjourney

Generate beautiful visuals and images using text or image prompts

FOTOR

Converts text or images into visuals with batch creation options.

Night Cafe

Creates stunning digital artwork from text prompts or images.

Designify

Automatically enhances and edits images for presentations, worksheets, and classroom materials.

Freepik

Offers artistic styles and custom parameters for detailed visuals.

Leonardo

Includes style referencing, prompt generation, and aesthetic control.

Deep AI

Features diverse art styles like Anime, Renaissance, and Pop Art.

Bing Image

Instantly generate images directly in Bing with descriptive prompts.

9

AI-Powered Activities to Enhance Classroom Management

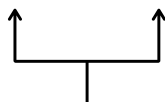
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By Med Kharbach, PhD

Create Exit Tickets



ChatGPT + Google Forms

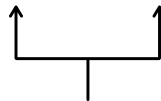


Use ChatGPT to generate quick exit questions and collect answers easily through Google Forms.

Gamify Learning



ChatGPT + Kahoot

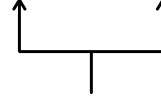


Build custom quizzes with ChatGPT and run them on Kahoot, Quizizz, or Quizalize.

Form Student Groups



ChatGPT + Wheel Decide

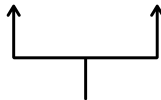


Use ChatGPT for grouping ideas and randomize them fairly with tools like Wheel Decide.

Create rules and expectations



ChatGPT + canva

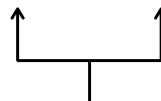


Brainstorm positive rules with ChatGPT and design a colorful poster in Canva.

Set Up Daily Routines



ChatGPT + Google Docs

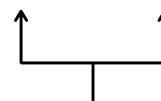


Map out daily routines with ChatGPT and organize them clearly in Google Docs or Trello.

Create Exit Tickets



ChatGPT + Mentimeter

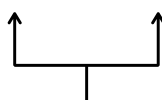


Create polls and check-ins with ChatGPT and display them anonymously using Mentimeter.

Encourage Student Voice



ChatGPT + Poll Everywhere

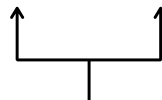


Use ChatGPT for survey ideas and gather anonymous student input with Poll Everywhere.

Make Student Participation Fun



ChatGPT + Wheel of Names

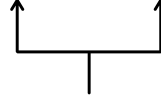


Use ChatGPT for grouping ideas and randomize them fairly with tools like Wheel Decide.

Organize Seating Arrangements



ChatGPT + Canva



Ask ChatGPT for layout ideas and design clear seating charts in Canva.

Best Writing Assistants for Teachers

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Top Writing Platforms



Canva

A writing and design platform with Canva Write and Canva Docs, perfect for visually rich ebooks but less suited for long books



Google Docs

A cloud-based writing tool with seamless collaboration, & AI-powered features



Scrivener

Designed for complex writing projects, offering powerful organization, section management, templates, and distraction-free writing.



Ulysses

A minimalist writing app with distraction-free mode, advanced organization, seamless syncing, and AI-powered grammar checking.



Pages

A visually rich word processor with elegant templates, great for professional-looking documents and creative projects.



Word

A reliable and versatile tool for long-form writing, ideal for academic and professional projects. Great for structuring, formatting, and editing.



Notion

A multi-functional tool combining note-taking, document creation, project management, and AI-powered writing assistance.

AI Writing & Editing Assistants



Grammarly

AI-powered writing assistant that corrects grammar, spelling, and style for polished, error-free writing.



Hemingway Editor

Highlights complex sentences and passive voice to improve clarity and readability.



Quillbot

AI-based paraphrasing tool that rewrites text while maintaining original meaning.



WordTune

Enhances sentence structure and tone with AI-powered rewriting suggestions.



AI Chatbots

ChatGPT, Claude, Gemini, etc.. Assist with idea generation, content drafting, and rewriting.



Outwrite

AI-driven writing tool that improves grammar, clarity, and conciseness.

AI Design & Illustration Tools



Canva

A user-friendly design tool with templates for book covers, illustrations, and marketing materials.



Adobe Express

A simplified version of Adobe's design tools, offering easy-to-use templates for book graphics.



Midjourney

AI-driven design tool for generating detailed, high-quality book artwork.



Leonardo AI

AI-driven design tool for generating detailed, high-quality book artwork.



Fotor

An easy-to-use online photo editor with AI tools for creating book covers and graphics

Tools for Creating Engaging Educational Videos

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Tips for Creating Engaging Instructional Videos

Know Your Learning Goals



Align videos with curriculum objectives.

Keep It Interactive



Pose questions or include quick checks for understanding.

Break Down Complex Topics



Use clear, step-by-step explanations.

Personalize the Tone



Use a warm, encouraging voice.

Add Visual Examples



Use charts, diagrams, and real-world examples.

Include Real-World Context



Connect concepts to students' lives.



ChatGPT

Generate detailed lesson scripts and explanations.



Claude

Craft engaging and context-aware video scripts.



Gemini

Integrate multimodal prompts for interactive script ideas.



Copilot

Quickly draft and refine instructional outlines.



Perplexity AI

Get concise summaries and key points for clear, effective scripts.



Sora

Transform text into professional-looking video presentations.

Text to Video

Turn your written content into engaging videos with these AI tools



VEED

Generate videos from text with powerful customization options.



Loom

Record and share videos instantly with interactive features.

Screen Recorders

Capture your screen and voice to create polished instructional videos



Camtasia

Professional screen recording with advanced editing.



FlexClip

Create dynamic videos with text-to-video features.



Vidnoz AI

Convert scripts into AI-generated videos quickly.



Pictory AI

Generate videos from text with automated scene selection.



Screencastify

Simple screen recording with built-in editing tools.



Snagit

Capture screen content with powerful annotation options.



ScreenPal

Quick, easy screen recording with sharing options.

Video Editors

Polish and enhance your instructional videos with these powerful editors.



Descript

Edit videos by editing the text transcript.



CapCut

Fast, intuitive video editing with effects and templates.



Canva

Easy-to-use editor with templates and animation tools.



Kapwing

Collaborative video editing with real-time feedback.



Invideo

Advanced editing with auto-subtitles and effects.



Camtasia

Professional editing with powerful screen recording integration.

Video Transcription

Convert your video content into text for enhanced accessibility.



Fireflies

Automated transcripts with AI-powered search.



Otter AI

Real-time transcription with collaborative editing.



Notta AI

Fast transcription with multiple export options



Rev AI

High-accuracy transcription with human review.



Fathom AI

Meeting transcripts with smart highlights and summaries.



tl;dv

Transcribe, share, and search meeting videos effortlessly.

AI Voiceover Generators

Use these AI tools to add human-like voiceovers to your instructional videos



ElevenLabs

Realistic voices in over 30 languages, voice cloning



Speechify

Instant text-to-speech with AI summaries



NaturalReader

90+ languages, voice cloning, & seamless browser integration



Genny

Customizable voices, 100+ languages, and export in multiple formats



Speech Central

Voice customization, PDF support, and Apple Watch integration.



Murf AI

Over 200 voices, emotional tone control, and voice cloning options.

Teaching with Avatars

AI Tools & Tips



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Do's and Don'ts

- ✓ Keep avatars age-appropriate and culturally respectful
- ✓ Use avatars to complement, not replace, real teaching presence
- ✓ Let students create their own avatars for identity expression
- ✓ Provide guidance on tone, language, and content in avatar-based work
- ✓ Test tools in advance to check accessibility and ease of use
- ✓ Monitor interactions to ensure avatars support, not distract from, learning



Classroom Applications

- ✓ Digital storytelling and character diaries
- ✓ Language practice and speaking activities
- ✓ Historical reenactments and simulations
- ✓ Flipped classroom intros and explainer videos
- ✓ Social-emotional learning reflections



Key Benefits

(Fink, Robinson, & Ertl, 2024)

Differentiate Instantly



Avatars adjust content to each student's level, no extra prep needed.

Provide On-the-Spot Help



Let avatars give feedback, hints, or guidance while you focus on instruction.

Make It Real



Use avatars for role-plays and real-world scenarios that connect learning to life.

Promote Independence



Avatars prompt goal-setting, reflection, and self-monitoring.

Engage Through Immersion



Bring lessons into virtual spaces that grab attention and hold it.

Spark Interest



With voices and personalities, avatars make even dry topics more engaging.

AI Tools



Synthesia



HeyGen



Canva



VEED



Fotor



Adobe Express



Reference:

Challenges

- 1 Privacy concerns and data usage in AI tools
- 2 Making sure avatars are not reinforcing stereotypes
- 3 Risk of over-reliance or distraction
- 4 Tech accessibility for all students
- 5 Maintaining teacher oversight, especially with younger learners

Learning Game Makers for Teachers

Kahoot



Create fun, fast-paced quiz games with images, videos, and timers. Perfect for live classroom competitions.

Gimkit



Create quiz games where students earn virtual money to buy upgrades and power-ups, adding strategy to learning.



Scratch



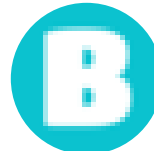
Create your own interactive stories, games, and animations with simple drag-and-drop blocks.

Factile



Lets you build your own Jeopardy-style games for classroom use. It supports buzzers, score tracking, and even team play

Blooket



Students answer questions to progress through various game modes like Tower Defense or Gold Quest.

Wordwall



Create interactive games like matching, sorting, anagrams, and quizzes. You can also print activities for offline use.

Flippity



Transforms Google Sheets into games and activities like flashcards, random name pickers, matching games, and quiz shows.

Educaplay



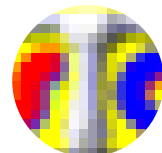
Design multimedia learning activities like quizzes, crosswords, word searches, and interactive maps. Works well with most LMS platforms.

Quizizz



Create self-paced quizzes with memes, timers, and feedback. Works great for homework or in-class competitions.

Classtools.net



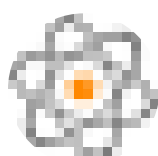
Offers game templates like Fakebook (character profiles), timeline creators, and countdown timers.

Baamzoozle



Make customizable team games and classroom quizzes in minutes. Ideal for in-person or remote play.

JeopardyLabs



Design custom Jeopardy-style quiz games quickly. You can share via link and edit collaboratively.

Quizalize



Create games with live leaderboards and team play. Tracks student performance in real-time and provides personalized follow-up activities

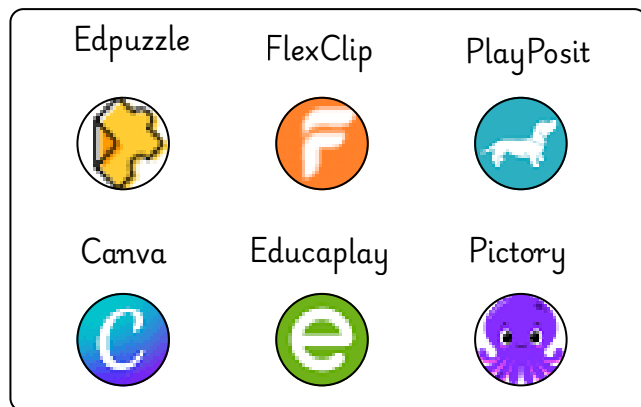
Quizlet



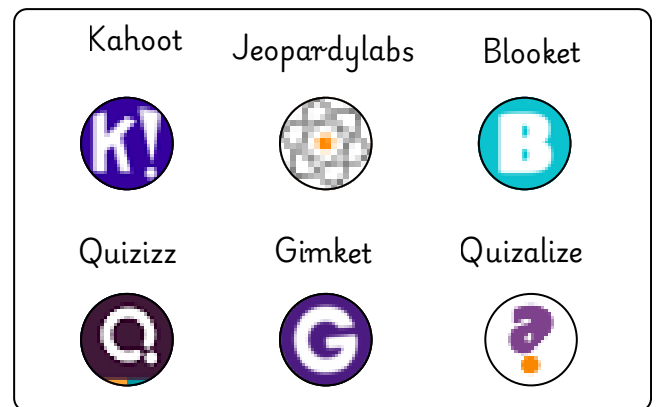
Turn study sets into interactive games like Quizlet Live, encouraging teamwork and collaborative learning.

Top Quiz Tools for Teachers

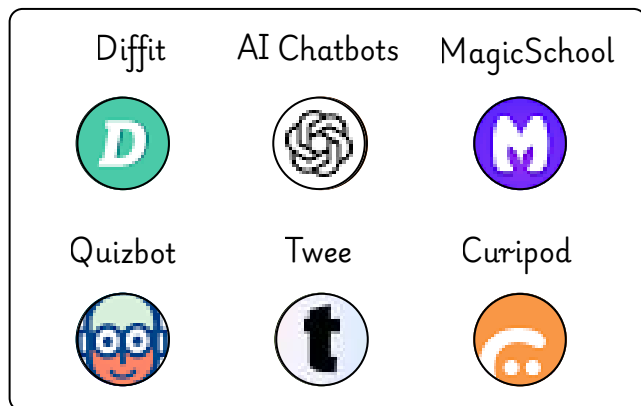
Video Quiz Tools



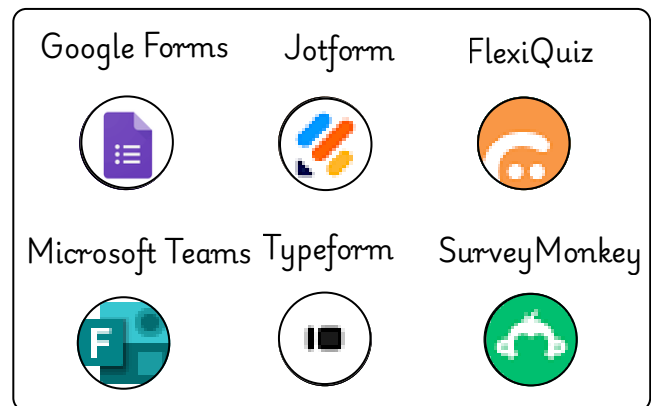
Gamified Quiz Tools



AI Quiz Generators













Form-Based Quiz Tools



AI Tools & Chatbots

Age Limits & Data Policies

AI Tool	Age Requirement	User Data & AI Training
AI Chatbots		
 ChatGPT	18 - 13 <small>with parent/legal guardian's permission</small>	Yes - unless you opt-out
 Gemini	13	Yes, but users have control over their data
 Claude	18	No, unless explicit permission is given
 Copilot	18 <small>Or younger with parent/legal guardian's permission</small>	No, User inputs have commercial data protection.
 Perplexity AI	18 - 13 <small>with parent/legal guardian's permission</small>	Yes, unless you opt-out
 Poe	13	No, unless you opt-in
Other AI Tools		
 Midjourney	13	No, inputs and outputs are not used to train the models.
 GrammarlyGO	13 in the USA with parent/guardian's consent. 16 outside the USA.	Yes, user inputs and outputs may be used to train models.
 Scholarcy	13	No, User inputs and outputs are not used to train the models.
 Wordtune	18 - 13 <small>with parent/legal guardian's permission</small>	Yes, User inputs and outputs may be used to train models.

AI Classroom Policy

Teachers Guide

Prepared by Med Kharbach, PhD
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What Is an AI Classroom Policy?

An AI classroom policy is a foundational document that guides how AI practices and tools are used in your classroom across the school year. It is a flexible, evolving agreement that sets expectations, safeguards learning, and promotes ethical use of AI by both students and teachers.



Why Is It Important?

Teachers must prepare students to engage with AI systems critically and responsibly, recognizing both the opportunities and risks they present. (UNESCO, 2023)

A clear classroom AI policy:



- Fosters accountability and shared responsibility
- Builds trust and transparency
- Develops digital literacy and critical thinking
- Promotes equity and responsible innovation

Tips for Creating Your AI Policy



1. **Collaborate:** Involve students in the process
2. **Make it student-centered:** Prioritize their learning experience
3. **Stay flexible:** Allow room for adjustments as tools and needs evolve
4. **Be transparent:** Discuss expectations and boundaries openly
5. **Review regularly:** Reflect on how it's working throughout the year

Components of an AI Classroom Policy

Academic Integrity



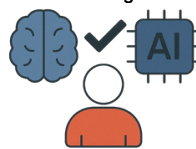
- Clarify acceptable vs. unacceptable AI use
- Require students to label or cite AI-assisted work
- Focus on process-based and authentic assessment

Data Privacy



- Don't input personal student data into public AI tools
- Use only district-approved, secure platforms
- Inform families about how AI tools handle student data

Ethical Use & AI Literacy



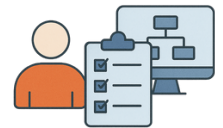
- Teach critical evaluation of AI-generated content
- Model transparency in your own AI use
- Include ethical discussions: bias, misinformation, limitations

Equity & Inclusion



- Ensure fair access to tools and support
- Use AI to enhance accessibility and differentiation
- Track usage to avoid unintentional exclusions

Pedagogical Alignment



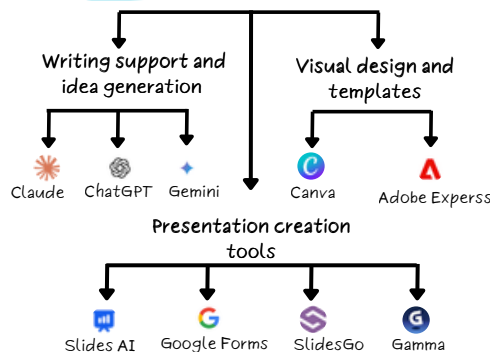
- Align AI tools with curriculum goals
- Use AI to enhance creativity, personalization, metacognition
- Keep the teacher's role central—AI is a support, not a substitute

Key Questions to Ask

- What AI tools will we allow in this class—and for what purposes?
- How will we define and detect AI misuse?
- How do we handle student data and privacy?
- What skills do students need to engage with AI responsibly?
- What should students disclose when using AI tools in assignments?



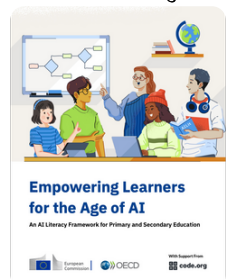
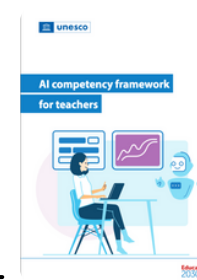
Useful AI Tools



Further Reading

AI and education: A competency framework for teachers, UNESCO

Empowering Learners for the Age of AI, OECD & Code.org



References

- UNESCO. (2023). AI and education: A competency framework for teachers. United Nations Educational, Scientific and Cultural Organization.
- Shah, P. (2023). AI & the future of education: Teaching in the age of artificial intelligence. Hybrid Learning Press.

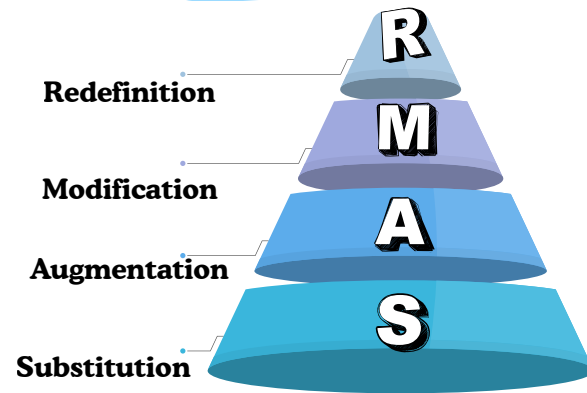
Using AI Through the SAMR Lens

Practical Ways to Rethink Learning Tasks



www.educatorstechnology.com

The SAMR Pyramid

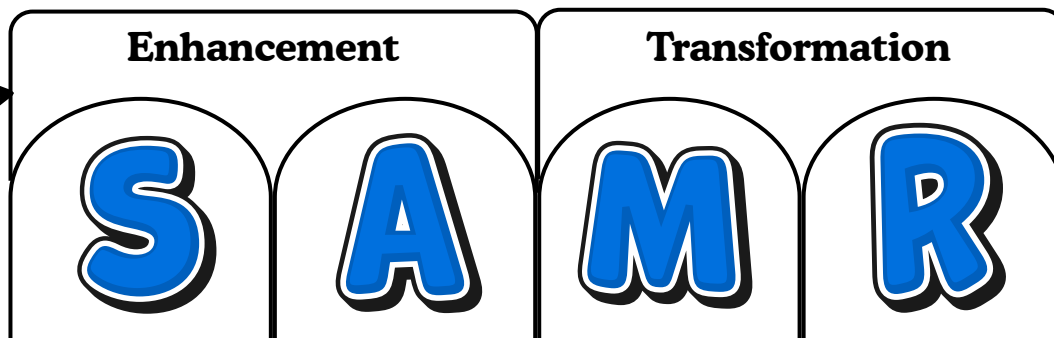


What is the SAMR Model?

The SAMR model is a framework developed by Ruben Puentedura that helps educators evaluate how technology is integrated into learning, moving from basic substitution to transformative learning experiences. It includes four levels: Substitution, Augmentation, Modification, and Redefinition.

SAMR + AI

AI can support each SAMR level, but the goal is intentional integration, use it not just to digitize tasks, but to extend thinking, creativity, and collaboration.



Technology supports traditional learning tasks

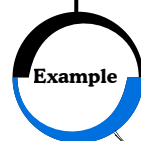
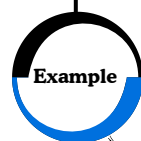
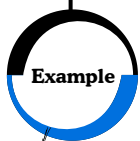
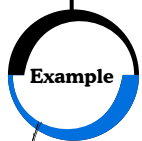
Technology enables new learning designs and outcomes

Tech replaces traditional tools with no change in function

Tech still substitutes, but with functional improvements

Tech allows for significant task redesign

Tech enables entirely new tasks previously inconceivable



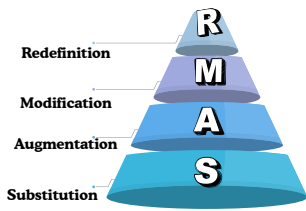
Students dictate their essay into ChatGPT using voice input, simply replacing handwriting or typing without changing the task itself.

Students use ChatGPT, Grammarly, or Quillbot to improve grammar, clarity, & tone in their writing.

Students co-write stories with ChatGPT, revise using feedback, and publish interactive versions online.

Students create a custom GPT in ChatGPT to guide them through math problems and clarify concepts as they learn.

Rethinking Learning Tasks with ChatGPT and the SAMR Model



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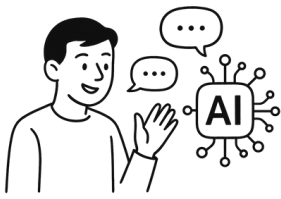
		Definition	ChatGPT Examples
Enhancement	S	Tech replaces traditional tools with no change in function	Students dictate their essay into ChatGPT using voice input, simply replacing handwriting or typing without changing the task itself.
	A	Tech substitutes with functional improvement	Students ask ChatGPT for grammar, spelling, and clarity suggestions on their written drafts.
Transformation	M	Tech allows for significant task redesign	Students engage in real-time writing collaboration with ChatGPT, revising based on dynamic prompts.
	R	Tech enables entirely new tasks previously inconceivable	Students build a custom GPT that helps them explore a topic deeply by guiding them through inquiry steps.

Using AI with Bloom's Revised Taxonomy

Practical ways AI supports every stage of learning



Level	Key Verbs	How AI Can Help	AI Tools
Create	Design, generate, plan, produce, construct, develop	<ul style="list-style-type: none"> Design an assessment that measures student understanding in a new way Develop a unit plan connecting multiple subjects around one theme Construct a rubric for evaluating student projects 	ChatGPT Gemini Claude Poe Canva AI Gamma
Evaluate	Judge, critique, assess, defend, justify, appraise	<ul style="list-style-type: none"> Have AI provide criteria and frameworks for students to judge the quality of sources or arguments. Use AI to help students assess the strengths and weaknesses of different approaches or strategies Have AI model peer review processes by critiquing sample student work 	ChatGPT Gemini Claude Consensus Scite AI Eduaide
Analyze	Differentiate, organize, attribute, compare, contrast, deconstruct	<ul style="list-style-type: none"> Have AI compare and contrast different historical perspectives on the same event Ask AI to differentiate between various learning styles represented in student responses Ask AI to organize student assessment data by learning standards and identify patterns 	ChatGPT Perplexity Claude Scholarcy Elicit Gemini
Apply	Use, implement, demonstrate, solve, execute, perform	<ul style="list-style-type: none"> Use AI to generate practice problems that implement specific mathematical concepts Have AI demonstrate step-by-step solutions to science experiments or math procedures Use AI to implement grammar rules by generating correct and incorrect sentence examples 	ChatGPT Gemini Claude Photomath MagicSchool Gamma
Understand	Summarize, explain, interpret, classify, compare, exemplify, paraphrase	<ul style="list-style-type: none"> Have AI summarize complex readings or research articles in student-friendly language Ask AI to explain difficult concepts using analogies or metaphors students can relate to Use AI to exemplify abstract concepts with concrete, relatable examples 	ChatGPT Brisk Teaching NotebookLM Otter AI Gemini Elicit
Remember	Recall, list, define, identify, recognize, repeat	<ul style="list-style-type: none"> Have AI generate flashcards for key vocabulary terms, dates, or formulas Use AI to define technical terms or academic vocabulary in simple language Have AI quiz students on factual recall with multiple choice or fill-in-the-blank questions 	QuizGPT Kahoot Quizlet Quizizz Study Mode Khanmigo



AI for Teachers

Tools, Extensions, & Resources

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Prompting Tips

- Use clear, natural language → Write like you're talking to a colleague.
- Be specific and give context → Add grade level, subject, or topic details.
- Keep it short but detailed enough → Don't overload, but don't leave AI guessing.
- Iterate and refine responses → Treat it like a back-and-forth chat – adjust until it works.
- Tell AI exactly what you want → Start with a verb: Summarize, Create, Draft, List, Explain.
- Ask for output in a specific format → Bullet points, table, paragraph, checklist, or script.
- Use your own files → Mention or attach lesson plans, student work, or your notes for more personalized help.
- Don't settle for the first draft → Ask: "Make it more friendly." "Make it shorter." "Add an example."

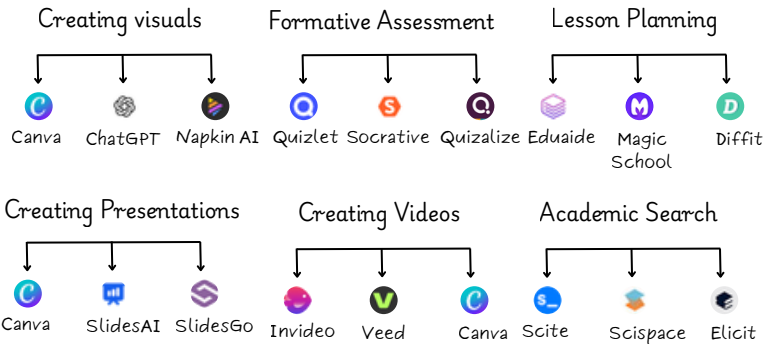
Prompting Guides

- Promptingguide.ai**
 Comprehensive platform for learning prompt engineering, including basics, advanced techniques, and practical examples.
- Learnprompting.org**
 Free, open-source guide with beginner to advanced modules. Emphasizes practical examples, community input, and research-backed methods.
- Google Prompting Guide 101**
 Highlights four main elements of effective prompts: Persona, Task, Context, and Format. Provides tips for writing natural, concise, and context-rich prompts.
- Anthropic Prompting Guide**
 Offers practical techniques from basic prompting to advanced strategies like chain-of-thought and multishot prompting.

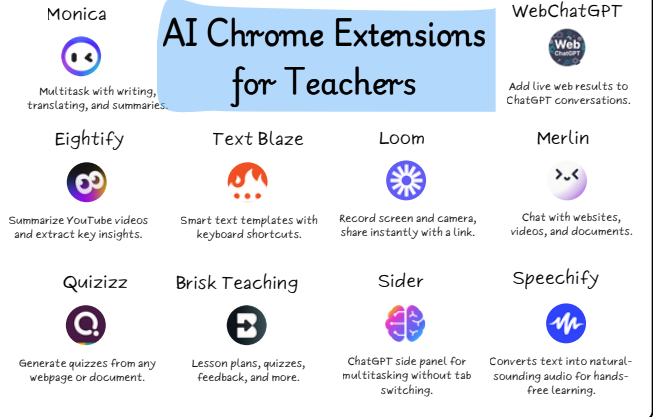
AI Integration framework

- 01 Set Clear Learning Goals**
 - Define learning objectives.
 - Identify the skills you want students to develop, like critical thinking and creativity.
- 02 Choose the Right AI Tools**
 - Select tools that align with your teaching goals.
 - Prioritize tools that enhance understanding and engagement.
- 03 Create an AI Policy**
 - Set clear guidelines for ethical AI use.
 - Involve students in creating this policy to build accountability.
- 04 Design AI-Enhanced Activities**
 - Integrate AI into lessons for deeper learning.
 - Use AI to support tasks like brainstorming, data analysis, and personalized feedback.
- 05 Reflect and Refine**
 - Regularly assess the impact of AI on learning.
 - Make ongoing adjustments based on student outcomes and feedback.

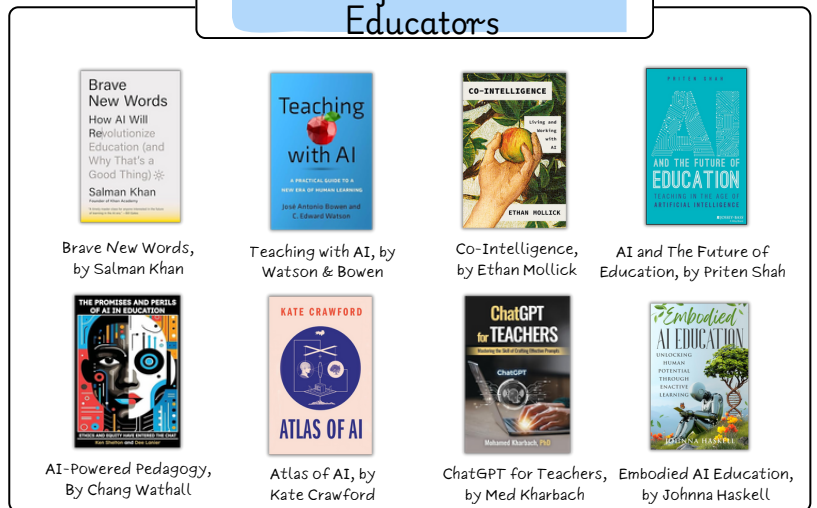
Educational AI Tools



AI Chrome Extensions for Teachers



AI Books for Teachers & Educators



Product Hunt

Community-driven platform for discovering new AI tools, with real user feedback and reviews.

AI Tool Hunt

Simple directory with free AI tools, categorized by type like animation, academics, and art.

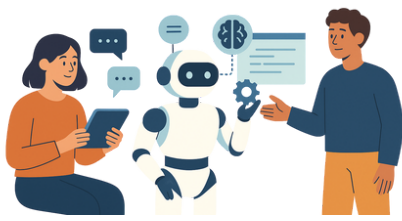
Places to Find Educational AI Tools

Toolify AI

Massive directory with 25,000+ tools, including education-focused options and GPT tools.

There is An AI Tool for That

Curated directory with trending, popular, and newly released AI tools.



A Practical AI Literacy Framework

Prepared by Med Kharbach, PhD
www.educatorstechnology.com

Based on the review draft of the European Commission and the Organization for Economic Cooperation and Development (OECD, 2025)

What is AI ?

"A machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments" (OECD, 2024)" (OECD, 2025, page, 6)

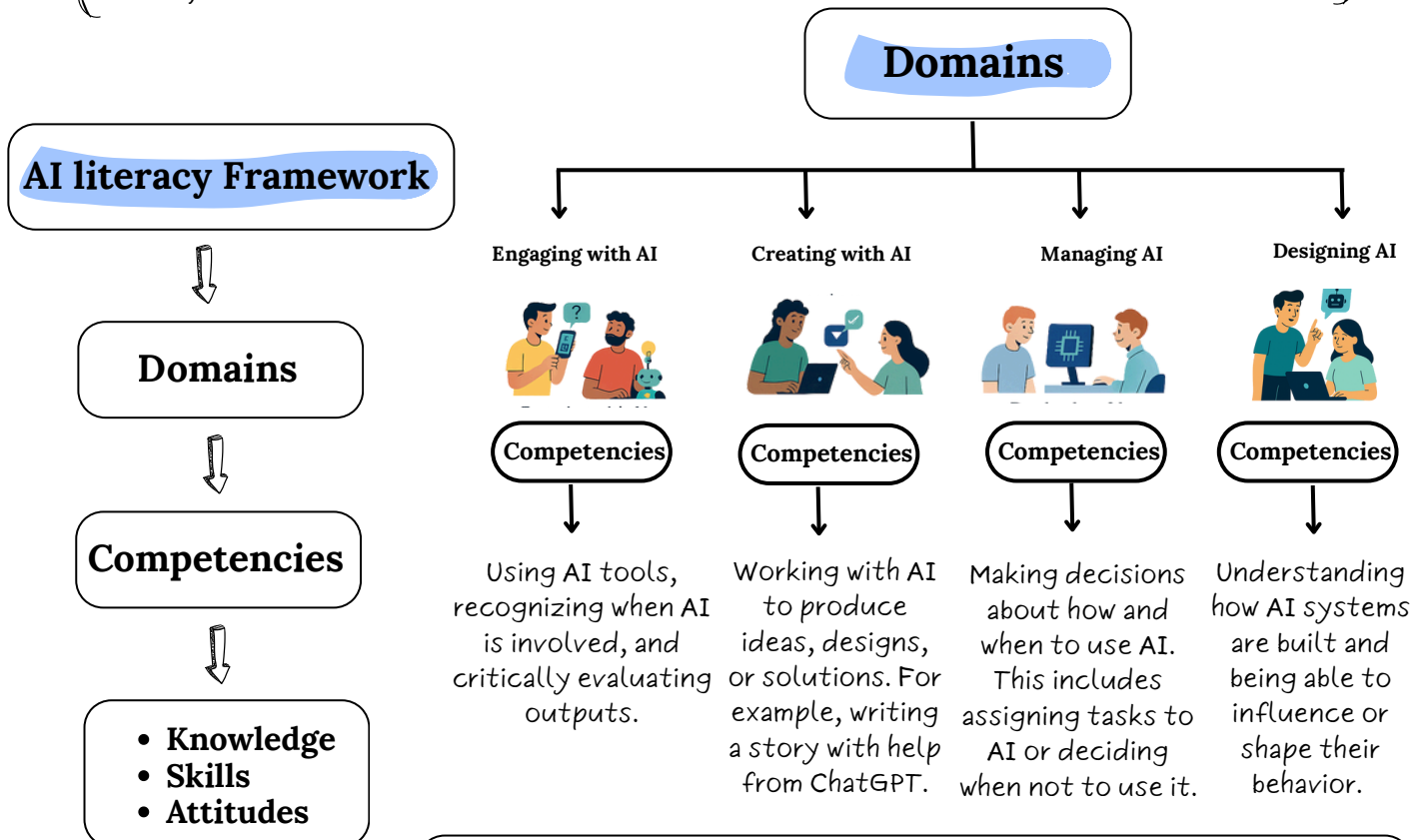
What is AI Literacy?

"AI literacy represents the technical knowledge, durable skills, and futureready attitudes required to thrive in a world influenced by AI. It enables learners to engage, create with, manage, and design AI, while critically evaluating its benefits, risks, and ethical implications." (OECD , 2025, p. 6)

Why It Matters

- ✓ • Young people are already using AI.
- ✓ • Many struggle with misinformation and bias.
- ✓ • Schools need to prepare students for an AI-shaped world.

The AI Literacy Framework , as conceptualized by OECD, is organized into four domains. Each domain represents a different way students can interact with AI. Inside each domain, there are competencies, and each competence is made up of three components: knowledge, skills, and attitudes.



Role of Teachers



Teachers are central to introducing AI literacy. They need support, training, and flexibility to integrate it across subjects.

Reference

OECD (2025). Empowering learners for the age of AI: An AI literacy framework for primary and secondary education (Review draft). OECD. Paris. <https://ailiteracyframework.org>

AI Literacy for Students

A Practical Guide



Based on EDUCAUSE's AI Literacy in Teaching and Learning: A Durable Framework for Higher Education

What is AI Literacy for Students?

"Students must understand, critically evaluate, and ethically apply AI technologies in academic contexts." (Kassorla et al., 2024)

What is AI Literacy in Teaching & learning?

"AI Literacy in Teaching and Learning (ALTL) involves understanding the fundamentals of how AI works; critically evaluating the application of AI tools in teaching, scholarship, and the management of educational priorities; and maintaining vigilance in evaluating tools and techniques to protect against bias, misuse, and misapplication of these powerful models. ALTL also demands a commitment to ethical usage, ensuring that AI tools are applied transparently and responsibly, with an awareness of their societal impacts." (Kassorla et al., 2024)



Core Competencies

(Kassorla et al., 2024)



Technical Understanding

Competency	Explanation
Fundamentals of AI	Students grasp ML, NLP, and neural nets and explain them in plain language with a course example.
Application of AI Tools	Students pick the right tool, write effective prompts, and note when and how AI was used.
Hands-On Experience	Students practice on real coursework, apply AI step by step, and separate tool output from their own work.

Evaluative Skills

Competency	Explanation
Critical Evaluation of AI Tools	Students verify claims, cross-check sources, and revise or discard weak outputs.
Assessment of AI Impact	Students reflect on how AI changed their process and results, naming gains and trade-offs.
Ethical Evaluation	Students weigh privacy, security, and bias, and justify when AI use is appropriate or limited.

Practical Application

Competency	Explanation
Integration into Learning	Students fold AI into routines with time limits, checkpoints, and disclosure.
Research Enhancement	Students use AI for analysis and literature scans and keep a reproducible log of prompts and tools.
Project-Based Learning	Students tackle real problems with AI, iterate with feedback, and show a human-in-the-loop workflow.

Ethical Considerations

Competency	Explanation
Responsible Use of AI	Students protect privacy, follow policy, and uphold academic integrity in AI-assisted work.
Development of Personal AI Policies	Students draft a brief personal AI policy and attach it to major submissions.
Vigilance in AI Application	Students stay transparent about AI's role, note risks/benefits, and adjust practices as tools evolve.



Source:

Kassorla, M., Georgieva, M., & Papini, A. (2024). AI literacy in teaching and learning: A durable framework for higher education. EDUCAUSE. <https://www.educause.edu/content/2024/ai-literacy-in-teaching-and-learning/student-alt>

12 Teacher Tips for Integrating AI in the Classroom

Based on the U.S. Department of Education, Empowering Education Leaders: A Toolkit for Safe, Ethical, and Equitable AI Integration (2024)



Prepared by Med Kharbach, PhD
www.educatorstechnology.com

1 Pace Your Integration

- Start small, try AI in one lesson or unit before using it across your teaching.
- Example: Use AI to generate a draft quiz for one class, then review and refine it before expanding to other classes.

2 Set Clear Purpose

- Link every AI activity to your learning objectives.
- Example: If your goal is to improve persuasive writing, have AI provide multiple examples for students to analyze and critique.

3 Verify All Outputs

- Cross-check AI-generated text, images, or data for accuracy and appropriateness.
- Example: If AI generates historical facts, confirm them with trusted sources before including them in lessons.

4 Model Responsible Use

- Show students how you use AI ethically: cite it, explain its role, and note limitations.
- Example: Display “Generated with AI and verified by [Your Name]” in lesson slides.

5 Co-Create Norms with Students

- Collaboratively set ground rules for AI use in class.
- Example: Students agree that AI can suggest ideas but not write full essays for them.

6 Promote Critical Thinking

- Design tasks where students must improve, fact-check, or challenge AI content.
- Example: Provide AI-generated solutions and ask students to identify flaws or suggest alternatives.

7 Protect Privacy

- Never input student names, grades, or sensitive data into AI systems.
- Example: Use fictional or anonymized data when testing AI grading tools.

8 Build AI Literacy

- Teach students how AI works, its strengths, and its limitations.
- Example: Run a mini-lesson showing how AI can produce both useful and flawed answers.

9 Support Accessibility

- Choose AI tools that offer multiple formats (text, audio, captions) and work on low-bandwidth connections.
- Example: Use AI to create transcripts for video content for students with hearing impairments.

10 Use AI to Differentiate Learning

- Adapt content for varied ability levels using AI as a starting point.
- Example: Generate simplified reading passages for struggling readers and extension questions for advanced learners.

11 Align with School Policies

- Ensure classroom AI practices match district rules and legal requirements.
- Example: If your district bans AI for grading, use it only for drafting feedback, not assigning marks.

12 Integrate Reflection Time

- After an AI activity, give students time to discuss how it helped or hindered learning.
- Example: Use exit tickets asking, “How did AI help you today?” and “What would you change?”



8

Important Ethical Principles for Using AI in Your Classroom

Based on the European Commission's Ethical Guidelines on the Use of AI and Data in Teaching and Learning (2022).

Prepared by Med Kharbach, PhD
www.educatorstechnology.com

1

Stay in Control



Always keep your role central. Use AI to support your teaching—not replace your judgment or interaction with students.

2

Be Fair and Inclusive



Make sure the tools you use work for all students. Watch out for bias, and ensure access for learners with different needs.

3

Respect Students as People

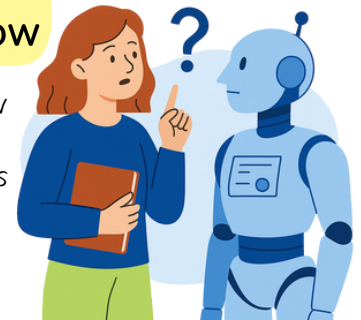


Students are not data points. Choose tools that protect their dignity and don't reduce them to numbers or predictions.

4

Ask Why and How

Don't use AI blindly. Know why you're using it, what it does, and how it reaches its conclusions. If you can't explain it, question it.



5

Protect Their Data

Handle student data with care. Know what's being collected, who has access, and how it's being stored or used.



6

Check for Safety and Accuracy

Trust, but verify. Make sure the tool is reliable and does what it claims. Be ready to step in when it doesn't.



7

Know Who's Responsible

If something goes wrong, you need to know who to contact and what steps to take. Don't use systems without clear accountability.



8

Keep Reflecting

Monitor the impact. If it's not helping—or worse, causing harm—adjust or drop it. Your judgment matters most.



Core Ethical Guidelines for Teachers Using AI in the Classroom

Core Ethical Principles

1 **Beneficence: Maximize benefits, minimize harm**

2 **Respect for Persons. Protect autonomy and ensure informed participation**

3 **Justice - Fair access and equitable outcomes**

Belmont Report (1979)

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Beneficence

- Use AI to enhance student learning and engagement while actively avoiding harm, such as misinformation, biased content, or privacy violations.
- Regularly review AI-generated materials for accuracy and relevance before sharing with students.
- Apply AI in ways that reduce workload without replacing the human connection central to teaching.

Respect for Persons

- Be transparent with students about when and how AI is used in teaching and learning.
- Give students choices on whether to engage with AI tools, and explain the potential benefits and limitations.
- Avoid using AI in ways that collect unnecessary personal data or track student behavior without consent.



Justice

- Ensure AI resources are accessible to all students, regardless of background, language, or disability.
- Avoid using AI in ways that could reinforce existing inequities, such as disproportionately benefiting students with greater access to technology at home.
- Monitor AI applications for potential bias in recommendations, assessments, or feedback, and take corrective action when necessary.

Sources:

AI in Language Teaching

Benefits & Limitations

Prepared by Med Kharbach, PhD
www.educatorstechnology.com

AI and Language Teaching

AI is transforming language education by offering personalized support, instant feedback, and authentic practice opportunities. It lowers barriers like anxiety and limited access to fluent speakers, making learning more effective and engaging. At the same time, it comes with limitations such as lack of empathy, technical issues, and privacy concerns that teachers must keep in mind.



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Benefits of AI in Language Teaching

1

Reduces Anxiety

AI partners provide a low-stakes environment for practice. Learners can try, make mistakes, and improve without the fear of being judged. For example, a student can rehearse a presentation with a chatbot until they feel ready to share it in class.

3

Fast Feedback

AI gives instant insights on grammar, vocabulary, and fluency. Quick corrections help learners adjust right away and see their progress. For example, a learner writing an essay can get immediate feedback on sentence structure and word choice.

5

Personalized Support

AI partners provide a low-stakes environment for practice. Learners can try, make mistakes, and improve without the fear of being judged. For example, a student can rehearse a presentation with a chatbot until they feel ready to share it in class.

2

Realistic Practice

Chatbots and voice systems create lifelike conversations. This allows learners to experience natural dialogue in a safe, controlled setting. For example, learners can practice ordering food at a restaurant or asking for directions before trying it in real life.

4

Keeps Learners Engaged

Interactive AI systems turn repetitive exercises into dynamic exchanges. This keeps motivation high and practice more enjoyable. For example, a language app can turn a reading task into a quiz with points and rewards to sustain interest.



VS

Limitations of AI in Language Teaching

1

Lacks Empathy

AI cannot offer genuine encouragement or emotional support. Feedback may feel flat or impersonal. For example, a learner struggling with motivation won't get the same reassurance an understanding teacher could provide.

3

Technical Issues

System glitches or inaccurate outputs can interrupt the flow of learning and reduce trust. For example, an app freezing mid-session can discourage a student from continuing practice.

5

Privacy Concerns

Learners may worry about how their personal data is stored and used. For example, students could hesitate to use voice features if unsure where their recordings are going.

2

Can Feel Mechanical

Without careful design, AI conversations may sound scripted or unnatural, limiting fluency practice. For example, a chatbot might respond with rigid phrases that don't match the learner's attempt to improvise.

4

Limited Authentic Dialogue

Many AI tools still struggle to sustain rich, context-based conversations. For example, a learner may ask a follow-up question and receive an unrelated or superficial response.

6

Bias Risks

AI often favors dominant language varieties, overlooking accents and dialects that reflect learner identities. For example, a student with a regional accent might receive unfairly low pronunciation scores.

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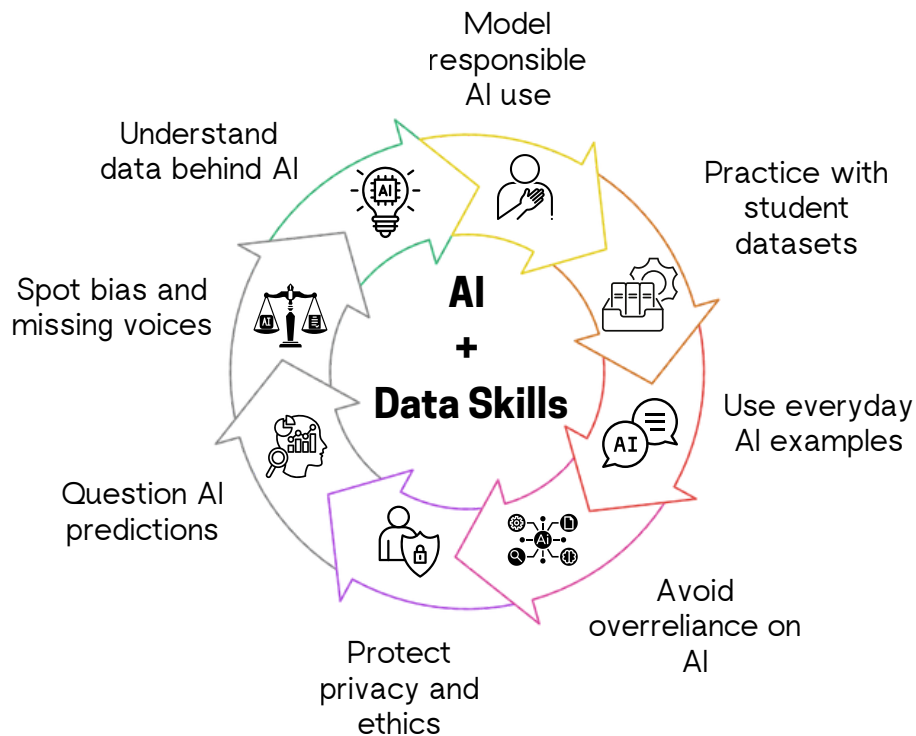
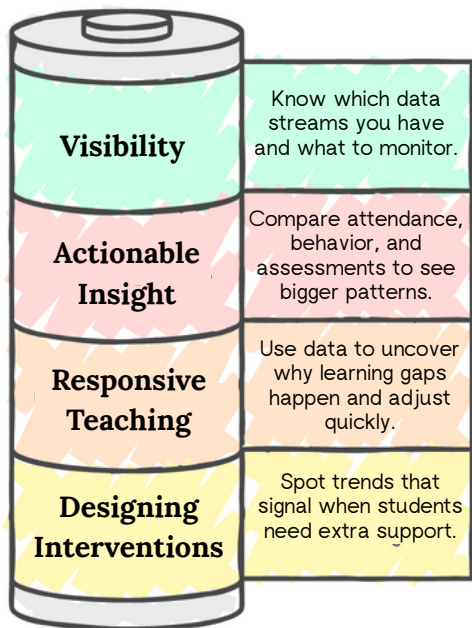


Data literacy is the practice of examining and understanding data to draw and communicate conclusions and make decisions. Data-literate educators continually, effectively, and appropriately access, interpret, act on, and communicate multiple types of data from classroom, local, state, and other sources to improve outcomes and experiences for students.

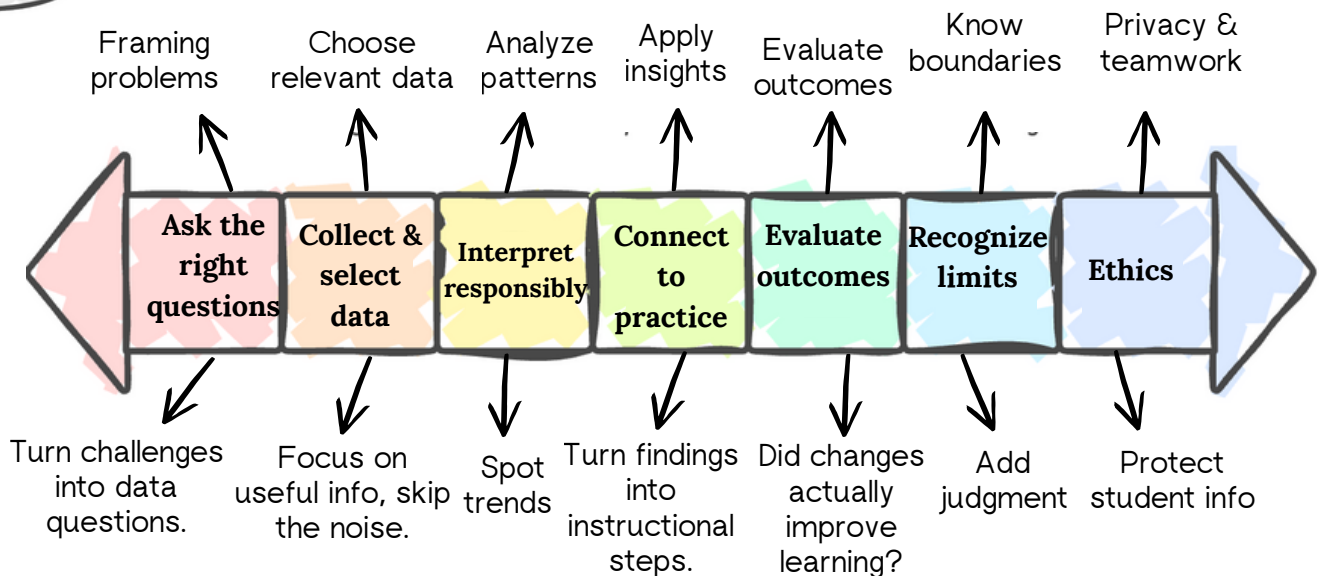
(National Center for Education Statistics, 2024, p.4)

AI Literacy and Data Literacy Skills Every Teacher Needs

Why Data Literacy Matters for Teachers



Skills of a Data-Literate Teacher



Sources:

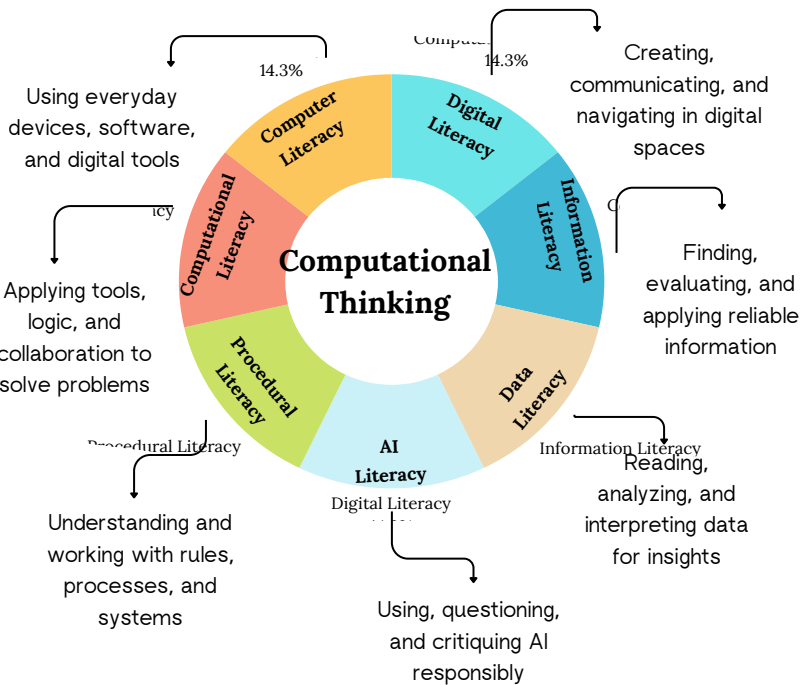
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AI Literacy ↔ Computational Thinking

Building 21st Century Skills

Prepared by Med Kharbach, PhD
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What Is Computational Thinking?

“Computational thinking involves solving problems, designing systems, and understanding human behavior, by drawing on the concepts fundamental to computer science.”

(Wing, 2006, p. 33)

“A way of solving problems and designing systems that draw on concepts fundamental to computer science and are applicable to various disciplines.”

(TeachAI)

Characteristics of Computational Thinking (ISTE)



Formulating Problems

→ Framing challenges so they can be tackled with computer-based tools and approaches.



Organizing Data

→ Logically structuring, sorting, and analyzing information to make it useful.



Using Abstractions

→ Simplifying complexity through models, patterns, or simulations.



Algorithmic Thinking

→ Creating step-by-step procedures that lead to workable solutions.



Evaluating Solutions

→ Testing and refining options to achieve the most efficient and effective result.



Generalizing

→ Applying successful methods to new situations and a wide variety of problems.

AI Literacy ↔ Computational Thinking

- 1 Decomposition:** Breaking complex problems into smaller parts.
- 2 Abstraction:** Highlighting the essential details and ignoring irrelevant ones.
- 3 Algorithmic Thinking:** Designing step-by-step solutions to problems.
- 4 Pattern Recognition:** Identifying trends and regularities in data.
- 5 Reflection (Debugging):** Spotting and fixing errors in AI outputs.
- 6 Evaluation:** Testing and refining solutions for the best result.

“ One of the major benefits of learning about AI is developing computational thinking ”

(TeachAI)

Sources:

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AI Literacy and Its Foundations

(Digital Promise, 2024)

www.educatorstechnology.com



Foundational Literacies



AI Literacy



Computational thinking is a problem-solving approach that breaks down tasks so a computer can process them, using logic, abstraction, and step-by-step procedures.

Skills

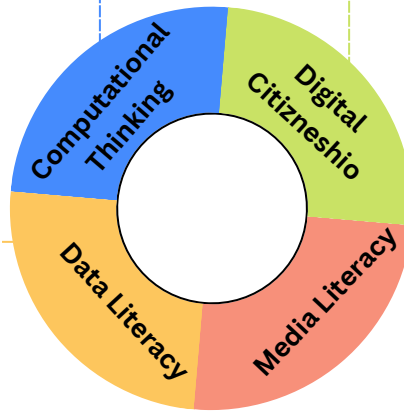
- Breaking problems into smaller parts
- Creating algorithms and procedures
- Recognizing patterns in data
- Automating processes with rules
- Using abstraction to simplify complexity



Data literacy is the ability to collect, analyze, interpret, and use data with critical awareness of quality, context, and limitations.

Skills

- Collecting accurate and relevant data
- Organizing and visualizing data clearly
- Assessing data quality and validity
- Interpreting patterns and trends
- Using data for informed decisions



Digital citizenship refers to the responsible use of technology to learn, create, and participate online while protecting privacy, rights, and relationships.



Skills

- Practicing safe and ethical online behavior
- Managing digital identity and footprint
- Protecting personal data and privacy
- Balancing media and screen time
- Communicating respectfully and responsibly

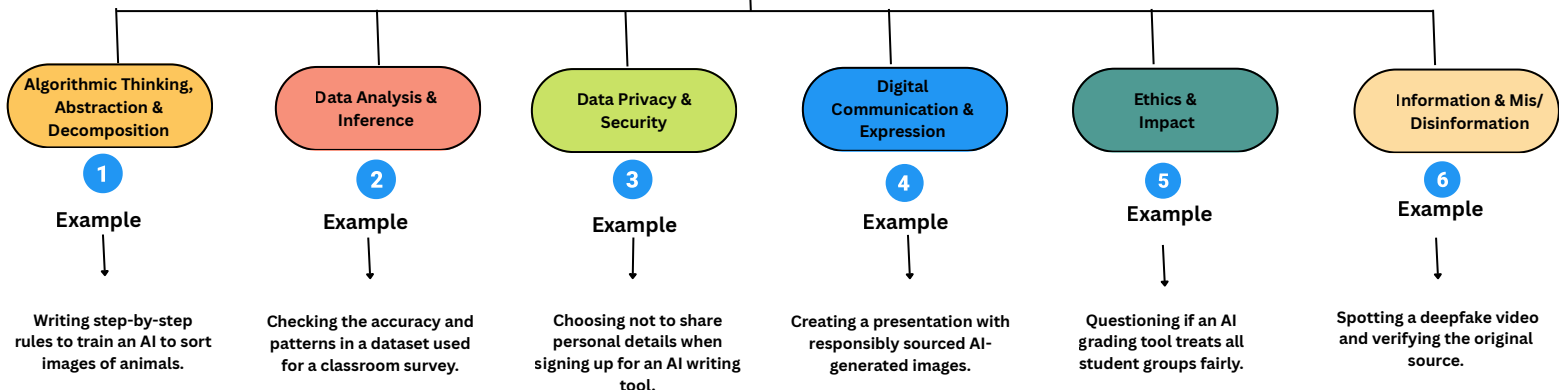


Media literacy refers to the ability to access, analyze, evaluate, and create content across media formats with awareness of influence, bias, and intent.

Skills

- Analyzing media messages and sources
- Recognizing bias and persuasive techniques
- Creating responsible digital content
- Evaluating credibility of information
- Understanding how algorithms shape media feeds

AI Literacy Practices



12

Teacher Tips for Integrating AI in the Classroom

Based on the U.S. Department of Education, Empowering Education Leaders: A Toolkit for Safe, Ethical, and Equitable AI Integration (2024)



Prepared by Med Kharbach, PhD
www.educatorstechnology.com

Pace Your Integration

1

- Start small, try AI in one lesson or unit before using it across your teaching.
- Example: Use AI to generate a draft quiz for one class, then review and refine it before expanding to other classes.

Set Clear Purpose

2

- Link every AI activity to your learning objectives.
- Example: If your goal is to improve persuasive writing, have AI provide multiple examples for students to analyze and critique.

Verify All Outputs

3

- Cross-check AI-generated text, images, or data for accuracy and appropriateness.
- Example: If AI generates historical facts, confirm them with trusted sources before including them in lessons.

Model Responsible Use

4

- Show students how you use AI ethically: cite it, explain its role, and note limitations.
- Example: Display “Generated with AI and verified by [Your Name]” in lesson slides.

Co-Create Norms with Students

5

- Collaboratively set ground rules for AI use in class.
- Example: Students agree that AI can suggest ideas but not write full essays for them.

Promote Critical Thinking

6

- Design tasks where students must improve, fact-check, or challenge AI content.
- Example: Provide AI-generated solutions and ask students to identify flaws or suggest alternatives.



Protect Privacy

7

- Never input student names, grades, or sensitive data into AI systems.
- Example: Use fictional or anonymized data when testing AI grading tools.

Build AI Literacy

8

- Teach students how AI works, its strengths, and its limitations.
- Example: Run a mini-lesson showing how AI can produce both useful and flawed answers.

Support Accessibility

9

- Choose AI tools that offer multiple formats (text, audio, captions) and work on low-bandwidth connections.
- Example: Use AI to create transcripts for video content for students with hearing impairments.

Use AI to Differentiate Learning

10

- Adapt content for varied ability levels using AI as a starting point.
- Example: Generate simplified reading passages for struggling readers and extension questions for advanced learners.

Align with School Policies

11

- Ensure classroom AI practices match district rules and legal requirements.
- Example: If your district bans AI for grading, use it only for drafting feedback, not assigning marks.

Integrate Reflection Time

12

- After an AI activity, give students time to discuss how it helped or hindered learning.
- Example: Use exit tickets asking, “How did AI help you today?” and “What would you change?”

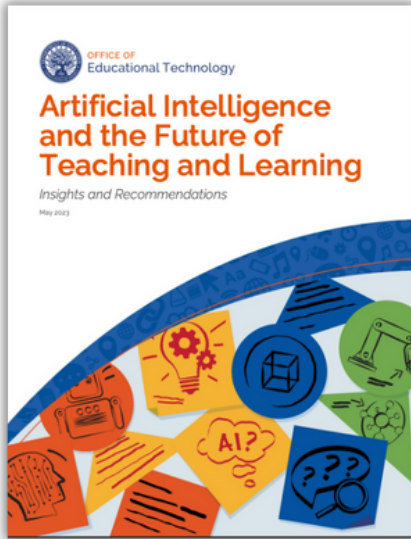




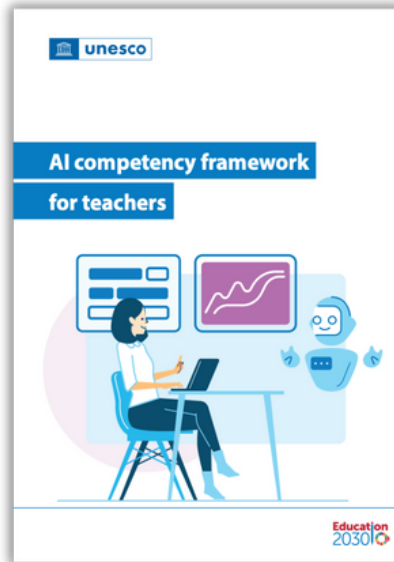
Free **AI Guides** for **Teachers**

Foundational guides that provide you with everything you need to teach, lead, and adapt with AI.

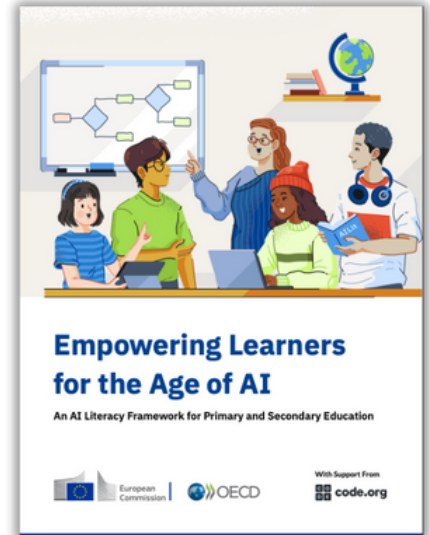
Compiled by Med Kharbach, PhD



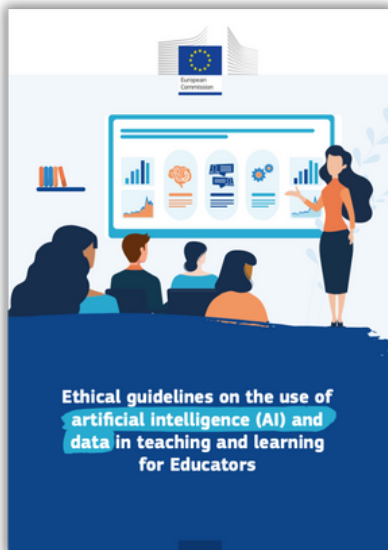
Artificial Intelligence and the Future of Teaching and Learning



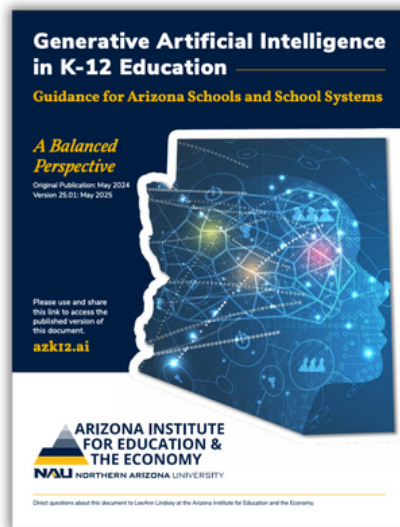
AI competency framework for teachers



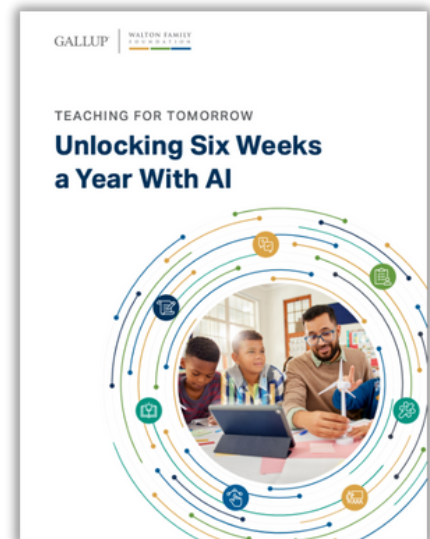
Empowering Learners for the Age of AI



Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for Educators



Generative Artificial Intelligence in K-12 Education



Unlocking Six Weeks a Year With AI

AI Resources for Teachers



Prepared by Med Kharbach, PhD
www.educatorstechnology.com

General Resources

- **The AI Education Project:** aiEDU
- **STE:** Artificial Intelligence in Education Resource Collection
- **Learn 21:** Generative AI Annotated Bibliography and AI Video Series
- **Microsoft:** Education AI Toolkit and AI in Education Research
- **Teach AI:** AI Guidance for Schools Toolkit & Policy Resources & Future of CS Education in an Age of AI
- **European Commission:** Ethical Guidelines on the Use of Artificial Intelligence (AI) and Data in Teaching and Learning for Educators
- **US Department of Education Office of Educational Technology:** Artificial Intelligence and the Future of Teaching and Learning

Family Engagement

- **A Parent's Guide to AI:** Parents' Ultimate Guide to Generative AI

AI Leadership and Implementation

- **ILO Group:** Framework for Implementing Artificial Intelligence (AI) in K-12 Education
- **Teach AI:** Guidance for Schools Toolkit
- **Common Sense:** AI and Our Kids: Common Sense Considerations and Guidance for Parents, Educators, and Policymakers



Data Privacy

- **Future of Privacy Forum:** Student Privacy Compass, Vetting Generative AI Tools for Use in Schools, & The Spectrum of Artificial Intelligence & Youth & Education Privacy
- **Consortium for School Networking (CoSN):** Student Data Privacy Toolkit
- **Access for Learning (A4L):** Arizona Student Privacy Alliance (AZSPA)



Academic Integrity

- **Matt Miller, Ditch that Textbook:** AI in the Classroom: What's Cheating and What's OK?
- **Dr. Rahul Kumar:** The Role of Postplagiarism in Understanding AI-Generated Content
- **Perkins, Furze, Roe, & MacVaugh:** The AI Assessment Scale



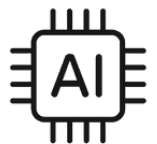
AI Literacy

For Educators

- **AI4K12:** Guidelines and Grade Band Progression Charts
- **Digital Education Council:** AI Literacy Framework
- **Evergreen:** AI Competencies for K-12
- **Leo S. Lo:** The CLEAR path: A framework for enhancing information literacy through prompt engineering
- **UNESCO:** AI Competency Framework for Students

For Students

- **aiEDU:** Teach AI Classroom Curricula
- **Code.org:** AI Curricula
- **Common Sense Media:** AI Literacy Lesson for Grades 6-12
- **MIT:** Day of AI Curriculum
- **MIT:** An Ethics of Artificial Intelligence Curriculum for Middle School Students
- **Stanford Graduate School of Education:** CRAFT AI Literacy Resources



Prompt Like a Pro: A Teacher's Guide



The 4 Prompt Elements



Persona
Who is speaking or acting (e.g., I am a marketing manager)



Task
What you want AI to do (e.g., summarize, draft, create)



Context
Background information AI needs (e.g., reference files, goals)



Format:
Desired structure of the output (e.g., bullet points, table)

Teacher Use Cases

"Prompting is not just asking good questions, but to AI. The clearer you are, the better help you get."



Create quiz questions from lesson notes



Summarize student feedback from surveys



Generate lesson plan ideas



Turn learning goals into classroom activities

Ready-to-Use Prompts for Teachers



"I'm a grade 7 teacher. Summarize this article in simple language for students."



"Write a kind email to parents about missing homework. Keep it short and clear."



"I'm a grade 5 teacher. Generate 5 creative writing prompts about nature."



"Turn this lesson outline into a 5-slide Google Slides deck. Add 1 key idea per slide."

General Prompting Tips



Use clear, natural language → Write like you're talking to a colleague.



Be specific and give context → Add grade level, subject, or topic details.



Keep it short but detailed enough → Don't overload, but don't leave AI guessing.



Iterate and refine responses → Treat it like a back-and-forth chat – adjust until it works.



Tell AI exactly what you want → Start with a verb: Summarize, Create, Draft, List, Explain.



Ask for output in a specific format → Bullet points, table, paragraph, checklist, or script.



Use your own files → Mention or attach lesson plans, student work, or your notes for more personalized help.



Don't settle for the first draft → Ask: "Make it more friendly." "Make it shorter." "Add an example."

Avoid These Prompting Mistakes



Being too vague → Bad: "Help me."



Forgetting context → Bad: "Write a lesson."



No clear task → Bad: "Math ideas."



No format → Bad: "Activities."



I'm a Grade 4 teacher. Create 3 fun math review games for fractions. List them in bullet points."



Check out my book **Prompting for Teachers** for more insights and tips on how to leverage the power of prompting in your interactions with AI



Teachers' Prompting Guide for Classroom Management

www.educatorstechnology.com

Student Behavior and Discipline

- ➔ "I am a middle school teacher preparing for the first week of school. Suggest practical strategies to help me set clear classroom expectations and routines that students will remember and follow."
- ➔ "I am teaching a lively group of 5th graders. Write a short, respectful script I can use to address disruptive behavior in the middle of a lesson without escalating the situation."
- ➔ "I am a high school teacher looking for ways to reinforce positive behavior consistently. Suggest non-tangible methods (like praise, responsibilities, recognition) that fit a teenage classroom culture."

Instructional Strategies and Student Engagement

- ➔ "I am a high school English teacher preparing a 50-minute lesson. Help me design an engaging lesson plan that keeps students active and participating from start to finish."
- ➔ "I teach 6th grade math and sometimes lose students' attention during longer activities. Suggest quick, practical attention-getter techniques I can use when students start to drift off."
- ➔ "I am an elementary school teacher looking to strengthen my daily interactions with students. Share simple, consistent ways I can build trust and positive relationships during everyday routines like greetings, check-ins, and feedback."

Communication and Collaboration

- ➔ "I am a 7th grade teacher and I need to update a parent about their child's recent progress in both academics and behavior. Draft a friendly and professional email that highlights improvements and encourages continued support at home."
- ➔ "I am setting up norms for a new high school class. Suggest ways I can involve students in creating classroom expectations collaboratively so they feel more ownership and responsibility."
- ➔ "I teach 5th grade and want to build stronger teamwork skills among my students. Share practical strategies or short activities I can use to foster collaboration and group problem-solving."

Classroom Organization and Structure

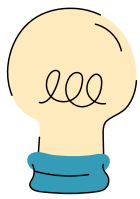
- ➔ "I am setting up a 4th-grade classroom for the new school year. Suggest layout ideas that minimize distractions and help students stay focused during independent and group work."
- ➔ "I am an elementary school teacher looking to tighten classroom management. List 5 practical transition routines I can teach students to move quickly and efficiently between activities without losing focus."
- ➔ "I teach middle school science, and I want students to take more ownership of the classroom space. Share strategies to encourage students to help keep supplies, desks, and materials organized on a daily basis."

SEL and Classroom Culture

- ➔ "I teach 3rd grade and want to make morning meetings more meaningful. Suggest creative morning meeting ideas that can help build a positive and welcoming classroom atmosphere."
- ➔ "I am a middle school teacher looking for ways to support students during high-stress times, like tests or conflicts. Share strategies or mini-activities I can use to help students regulate their emotions in the moment."
- ➔ "I work with a diverse group of 5th graders. Suggest simple classroom activities that encourage kindness, peer support, and stronger friendships among students."

Diversity, Equity, and Inclusion

- ➔ "I am a high school social studies teacher working with a culturally diverse group of students. Suggest ways I can adapt my lessons to be more inclusive and respectful of different backgrounds and experiences."
- ➔ "I teach a multi-grade elementary class with students from various cultural and linguistic backgrounds. Share practical ideas I can use to make my classroom environment more welcoming, safe, and inclusive for every student."
- ➔ "I am a middle school teacher aiming to improve my classroom management practices. Give me examples of culturally responsive strategies that help build trust, respect, and positive behavior among students from diverse communities."



Critical Thinking Teachers' Guide

Prepared by Med Kharbach, PhD
www.educatorstechnology.com

What is Critical Thinking?

Ennis (2015)

"reasonable reflective thinking focused on deciding what to believe or do." (p. 32)

Dewey (1933)

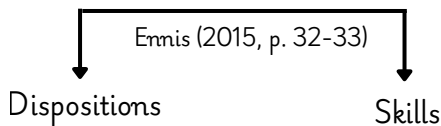
"active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends." (p. 9)



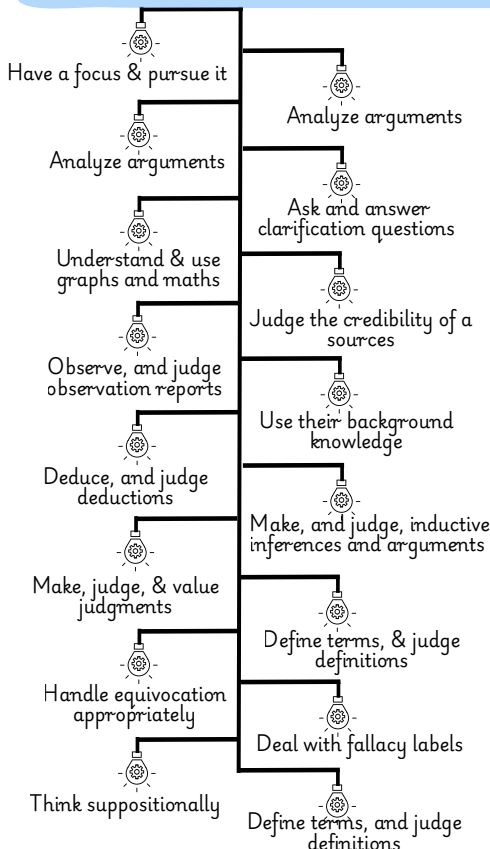
Why Critical Thinking Matters?

- It protects us from manipulation
- It improves decision-making
- It helps us challenge assumptions
- It makes us better citizens
- It sharpens our learning.

Ennis' Critical Thinking Framework



Critical Thinking Skills



Critical Thinking Dispositions

Ennis (2015, p. 32)

- Seek and offer clear statements of the thesis or question,
- Seek and offer clear reasons,
- Try to be well informed,
- Use credible sources and observations, and usually mention them,
- Take into account the total situation,
- Keep in mind the basic concern in the context,
- Be alert for alternatives,
- Be open-minded
- Take a position and change a position when the evidence and reasons are sufficient,
- Seek as much precision as the situation requires,
- Try to "get it right" to the extent possible or feasible, and
- Employ their critical thinking abilities.

Purpose

What are you trying to achieve with your thinking? What's the goal?

Question

Every thought starts with a question or a problem to solve.

Information

What data or evidence are you using? Is it reliable?

The Elements of Thought

Paul & Elder (2014)

Concepts

What ideas or theories are shaping your interpretation?

Assumptions

What are you taking for granted?

Inferences

What conclusions are you drawing? Are they reasonable?

Point of View

From what perspective are you looking at this issue?

Implications

If your reasoning is accepted, what follows? What's at stake?

References

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Systems Thinking

Teachers' Guide

Prepared by Med Kharbach, PhD
www.educatorstechnology.com



What is Systems Thinking?

Arnold & Wade (2015)

"a set of synergistic analytical skills used to improve the ability to recognize and understand systems, predict their behavior, and design their changes to achieve desired effects." (p. 675)

Applying Systems Thinking in Teaching Practice

1 Use real-world systems

Teach students to examine and understand real-world systems (e.g., ecosystems, social systems).

2 Encourage interdisciplinary learning

Tie concepts from different fields to reflect how real-world problems are interconnected.

3 Visual mapping tools

Use diagrams to help students visualize systems.

4 Continuous reflection

Regularly incorporate systems thinking questions to deepen understanding

5 Collaborative learning

Use group projects where students role-play system stakeholders and negotiate solutions.

Navigates complexity

Helps educators understand the interrelated elements in classrooms and curricula.

Holistic problem-solving

Encourages addressing root causes, not just symptoms, of educational challenges.

Why Systems Thinking is Important for Educators

Enhances critical thinking

Develops higher-order thinking by helping students analyze interrelated factors.

Tackles complex problems

Helps educators solve complex, interconnected issues like inequality or tech integration.

Fosters collaboration

Builds adaptive learning environments through teamwork and multiple perspectives.

AI's systemic effects

AI's impact goes beyond just adding tools, it changes entire systems (e.g., education, labor markets).

Systems Thinking in the Age of AI

Preparing students for AI

Guide students in critically assessing how AI influences various stakeholders and broader societal issues.

Broader societal implications

Use systems thinking to address the systemic nature of AI-related challenges like automation and misinformation.

Navigating AI complexity

Systems thinking helps educators understand AI's multifaceted impact and unintended consequences.

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Important Tips for Designing AI-Proof Assessments

By Med kharbach, PhD

www.educatorstechnology.com



1

Help students understand the risks of using AI and the value of self-expression.

- Discuss how skills like collaboration, pitching, and debate improve communication when AI is unavailable.

Design assessments that AI tools like ChatGPT cannot easily answer

2

- Ask students to write about personal experiences and connect them to the text or reflect on their learning journey.
- Require students to critique ChatGPT's default response to a question.
- Have students cite real, primary sources to support specific claims or analyze recent events.



3

Incorporate interactive, real-time assessments



- Assess students through live peer discussions and use peer assessment tools like Peerceptiv.
- Shift lectures to be take-home while requiring assignments to be completed in class.

4

Encourage iterative work and critical thinking



- Require students to produce multiple drafts, refining their work through peer or educator feedback to reinforce the learning process.

5

Assign creative outputs in challenging mediums



- Ask students to create PowerPoint presentations, visual displays, videos, or audio recordings that are harder for AI to replicate.

6

Set clear expectations about AI detection tools

- Inform students that you will use AI detectors like GPTZero to check submitted work, deterring misuse.

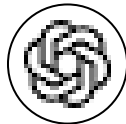
10

Free AI Literacy Resources for Teachers



OpenAI Academy

Free sessions, tutorials, and community groups to build your AI knowledge—ideal for all levels.



Claude AI Academy

Learn how to use Claude for teaching, writing, research, and productivity through hands-on tutorials.



Generative AI for Educators

Self-paced course with practical use cases, ethical strategies, and reflection prompts. Offers by Google.



MIT RAISE

Open AI curriculum and creative tools for K-12, including App Inventor and AI Playground.



Common Sense AI Lessons

Ready-to-use mini lessons for grades 6-12 on AI ethics, bias, chatbots, and more.



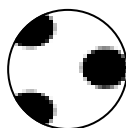
CRAFT (Stanford University)

Multidisciplinary resources to help high school students explore and critique AI.



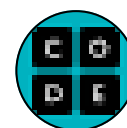
AI Pedagogy Project

Assignments and resources focused on critical, ethical, and imaginative uses of AI in education.



Prompt Engineering Guide

Advanced prompt strategies, tutorials, and model-specific guides for LLMs like ChatGPT and Claude.



AI 101 for Teachers

Expert-led sessions, teaching guides, and resources on AI ethics, learning, and classroom use.



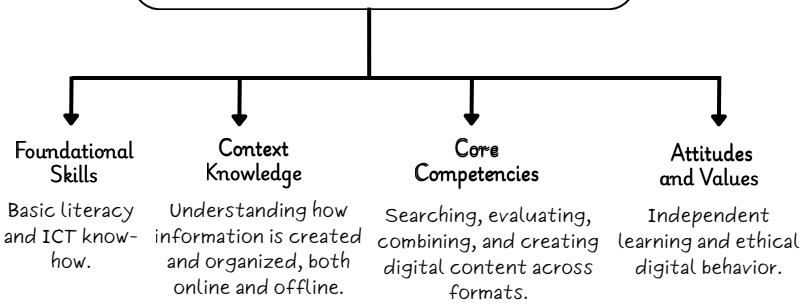
Digital Literacy

Simply Explained

Prepared by Med Kharbach, PhD
www.educatorstechnology.com

Core Components of Digital Literacy

Bawden (2008) outlines four essential elements



What is Digital Literacy?

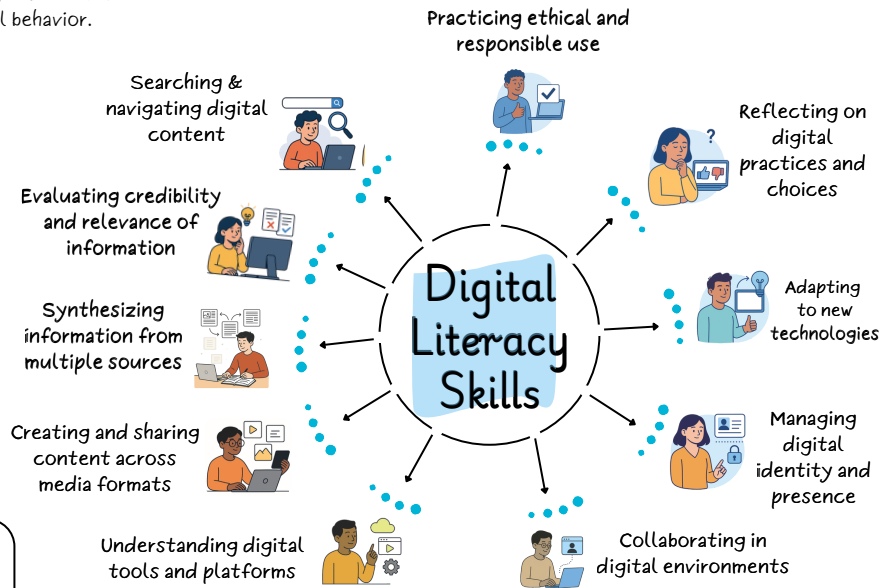
Paul Gilster (1997) defines digital literacy as:

"The ability to understand information and—more important—to evaluate and integrate information in multiple formats that the computer can deliver. Being able to evaluate and interpret information is critical [...] you can't understand information you find on the Internet without evaluating its sources and placing it in context" (in Pool, 1997, p. 6)

What Digital Literacy is Not



- It's not just knowing how to use devices
- It's not limited to typing or basic software skills
- It's not a checklist of technical tasks
- It's not the same for every subject or student
- It's not separate from critical thinking and ethics
- It's not something mastered once and for all



Digital Literacy & AI

- ✓ Understand how AI tools gather, sort, and generate information
- ✓ Encourage responsible data sharing and privacy awareness
- ✓ Teach students to question and verify AI-generated content
- ✓ Use AI as a support for thinking, not a replacement for it
- ✓ Promote ethical use of AI in learning and communication
- ✓ Build habits of reflection when working with AI tools

References

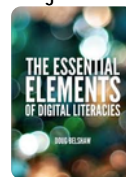
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Key Readings

Digital Literacy, Paul Gilster



The Essential Elements of Digital Literacies, Doug Belshaw



New Literacies, Lankshear & Knobel



Digital Literacies for Learning, Alan & Dan



Digital Literacies, Lankshear & Knobel



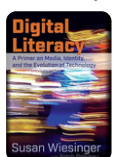
Create to Learn, Hobbs Renee



Digital literacy Unpacked, Reedy & Parker,



Digital Literacy Susan Wiesinger



10

Digital Skills That Still Matter Even With AI

www.educatorstechnology.com

10

Practicing ethical
and responsible
use of technology

9

Reflecting on
digital
practices and
choices

1

Searching &
navigating digital
content



2

Evaluating
credibility and
relevance of
information



3

Synthesizing
information
from multiple
sources



4

Creating and
sharing
content across
media formats



5

Understanding
digital tools and
platforms



6

Collaborating in
digital
environments



8

Adapting
to new
technologies



7

Managing
digital
identity and
online
presence



Digital
Literacy
Skills

Important Digital Literacy Skills for Teachers and Students

Ease of Use



- Is it intuitive for both teachers and students?
- Can users start quickly without extensive training?
- Are support resources available and easy to access?
- Does it integrate well with your existing tools?

Educational Value



- Does it align with your goals and curriculum?
- Does it deepen student understanding & engagement?
- Is the content relevant and meaningful?
- Can it be applied across multiple subjects?

Ethical Standards



- Does it help reduce bias and promote fairness?
- Is it transparent in how it works and generates content?
- Are there safeguards for accountability?
- Does it support equity and inclusion?

Effectiveness



- Does it deliver on its promises?
- Is it accurate, relevant, and reliable?
- Can you see measurable student improvement or engagement?
- Does it require frequent updates or tweaks?

Cost-Effectiveness



- Is it competitively priced?
- Does the value justify the cost?
- Are there hidden costs or ongoing fees?
- Can it replace or enhance current tools economically?

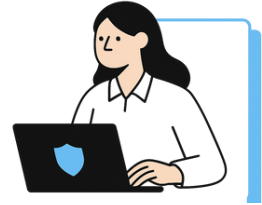
Data Privacy & Accessibility



- What data is collected, and how is it used?
- Is it compliant with privacy laws like FERPA or GDPR?
- Is it accessible and adaptable for all learners, including those with disabilities?

What Is Digital Citizenship?

Teachers Guide



Prepared by Med Kharbach, PhD
www.educatorstechnology.com

What is Digital Citizenship?

"The norms of appropriate, responsible behavior with regard to technology use."
Ribble & Bailey (2007, p. 10)

"The ability to participate in society online."
(Mossberger et al., 2008, p. 1)

Digital citizenship means using technology in ways that are responsible, ethical, and informed. It includes understanding digital rights and responsibilities, protecting privacy, communicating respectfully, thinking critically about online content, and making positive contributions to digital communities.

Digital Citizens

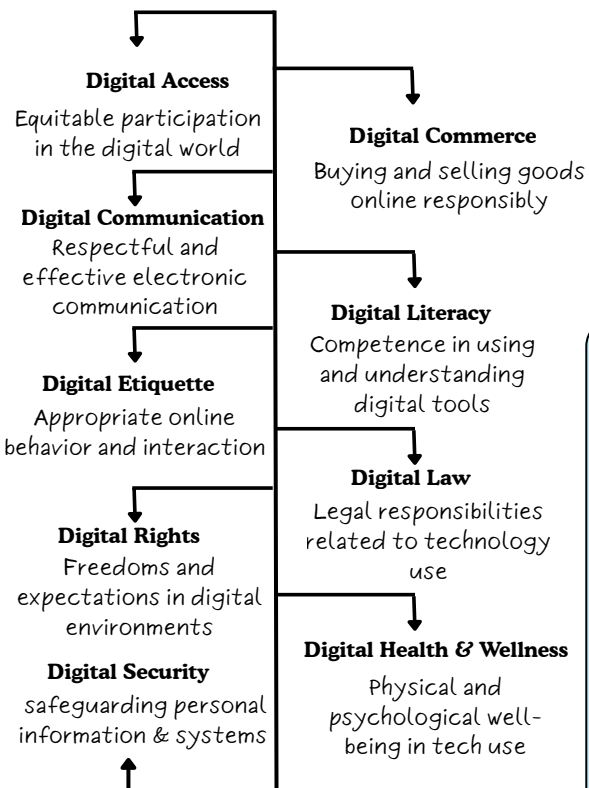
"Those who use the Internet regularly and effectively—that is, on a daily basis" (Mossberger et al., 2008, p. 1)



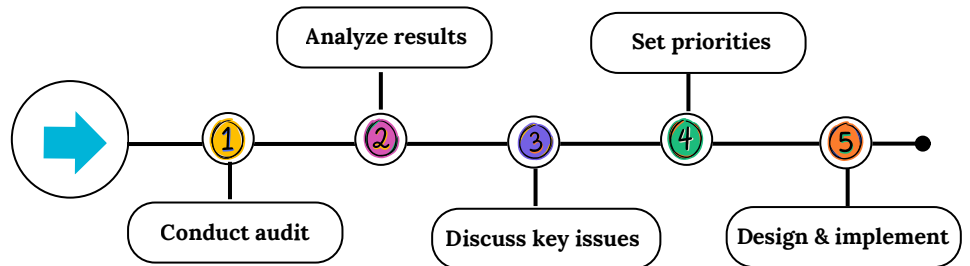
Why Digital Citizenship Matters?

- ✓ Encourages safe, responsible, and ethical tech use
- ✓ Builds critical digital literacy and evaluation skills
- ✓ Prepares students for academic and professional success
- ✓ Protects privacy, well-being, and online safety
- ✓ Promotes equity through access and inclusion
- ✓ Fosters respectful global digital engagement
- ✓ Moves beyond rules to meaningful tech education
- ✓ Shapes habits for lifelong digital participation

Elements of Digital Citizenship



Steps to Create a Digital Citizenship Program



Digital Citizenship Online Resources

Be Internet Awesome

Edutopia

Common Sense Media

PBS Learning media

Key Readings

References

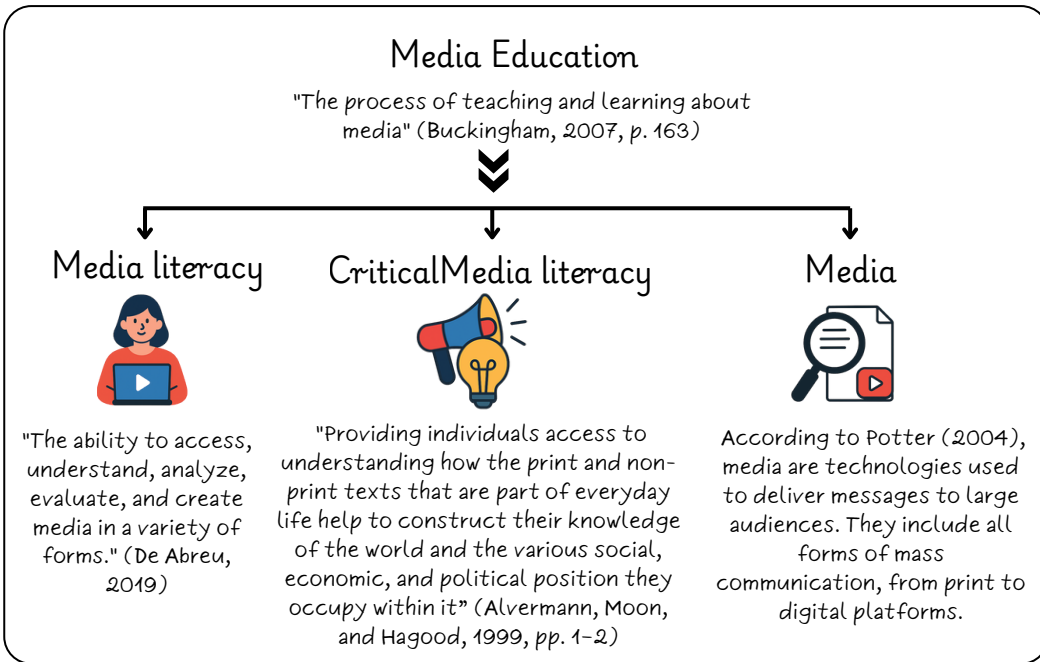
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Media Literacy

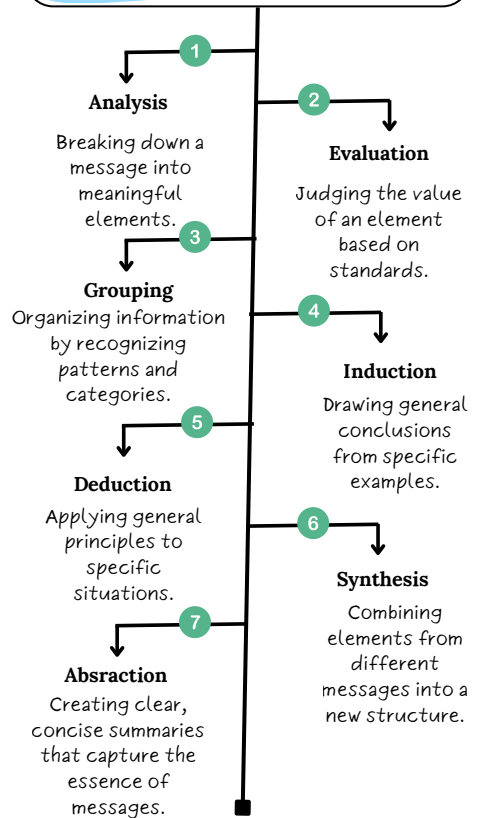
Simply Explained

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Definition



Media Literacy Skills (Potter, 2004)



Why Media Literacy Matters

- Helps individuals recognize bias, manipulation, and misinformation
- Encourages critical thinking about media content and sources
- Empowers people to make informed choices as consumers and citizens
- Fosters awareness of media influence on beliefs, behavior, and culture
- Promotes active rather than passive engagement with media
- Supports democratic participation and civic responsibility
- Equips students with essential skills for the digital age

Strategies to Teach Media Literacy

- Use real-world media examples for critical analysis
- Encourage students to question authorship, purpose, and audience
- Teach how to identify bias, framing, and missing perspectives
- Compare how different media outlets cover the same story
- Incorporate media creation projects (videos, podcasts, blogs)
- Discuss advertising techniques and persuasive language
- Teach students to fact-check and verify sources
- Create classroom discussions around current media trends and issues

Key Readings

Understanding Media,
Marshall McLuhan



Media Literacy,
James Potter



Changing Literacies,
David Buckingham



Literacy in the New Media
Age, Gunther Kress



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11

Lessons I Learned After 15 Years in EdTech

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1

Young Teachers Jump In Faster

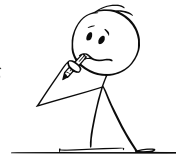
Newer teachers tend to embrace new technologies easily, often experimenting without fear.



2

Mobile Tech Still Underused

Despite its potential, smartphones and tablets are still rarely used seriously in classrooms.



3

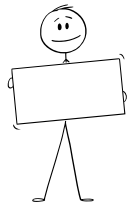
PD for Technology Is Still Weak

Most teachers are left to navigate technology integration without proper training or support.

4

Outdated School Infrastructure

Many schools operate with outdated devices and weak networks that block meaningful innovation.



5

Theory-Practice Gap in Teacher Training

There is still a real gap between what teacher education programs teach and real-world classroom needs.



6

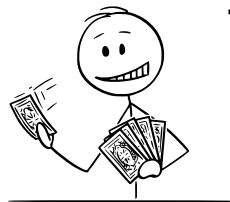
Tech Use Without Pedagogical Grounding

Technology often gets used for the sake of it, without linking it to strong teaching frameworks.

7

Stuck at Lower SAMR Levels

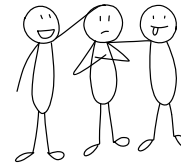
A lot of tech integration stays stuck at substitution, without truly transforming learning experiences.



8

Digital Divide Is Still There (Now AI Too)

Students from less privileged backgrounds continue to have limited access to digital and AI tools.



9

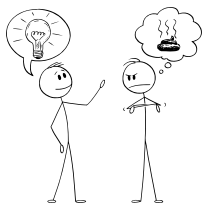
Students Are Tech Miles Ahead

Students learn and adapt to new technologies much faster than many teachers can keep up with.

10

Fear and Doubt Slow Tech Adoption

New technologies often trigger fear, doubt, and hesitation among teachers, slowing down adoption.



11

Ecological Cost of Tech Overlooked

The environmental impact of digital technology and AI rarely enters conversations about EdTech.

