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HANDOUT · GRADES 6–12

AI Model Field Guide

Think in kinds of models, not brand names. What each type is good at, where it fails, and which tool fits which job.

GRADES 6–12 | HANDOUT | UPDATED OCT 2026

WHAT'S INSIDE

- Nine types of model
- The major labs and student age rules
- Strengths and limits
- Which tool for which job

Free to download, print and teach · arqiv.si/teachers/ai-literacy

Nine types of model

Type	How it works	Good at	Weak at	Try in class
Chat models (LLMs)	Read huge amounts of text, then predict the next word, over and over. Tuned with human feedback to be helpful.	Explaining, summarizing, rewriting, brainstorming, drafting questions.	Facts it never saw or half-remembers, invented sources, flattering agreement, exact counting.	Ask for three explanations of photosynthesis for a ten-year-old. Students rank them.
Reasoning (“thinking”) models	Spend extra computation writing step-by-step work before answering. Trained with rewards on problems whose answers can be checked, like math and code.	Multi-step math, logic puzzles, planning, code.	Slower and costlier. Can still be confidently wrong, and the visible “thinking” is not always a faithful record of how it got there.	Give the same word problem to a fast mode and a thinking mode. Compare answers and time.
Multimodal models	Take in more than text: images, audio, sometimes video.	Describing a photo, reading a chart, transcribing speech.	Missing small details, misreading graphs, confident guesses about what it cannot see.	Show a graph. Ask for a description. Students list what it missed.
Image generators	Many start from random noise and refine it toward a picture that matches the prompt (diffusion). Others build the image piece by piece, and some products combine methods.	Concept art, illustration ideas, style exploration.	Text inside images, counting objects, hands, bias in who appears for words like “scientist.”	Prompt “a scientist” ten times. Tally who appears. Discuss why.
Video generators	Apply a similar process across time.	Short clips and visual ideas.	Physics that does not hold up, people and objects that change between frames.	The teacher prepares five-second clips. Students spot the impossible physics.
Music and voice models	Generate audio from text, or imitate a voice.	Jingles, sound effects, accessibility tools.	Copyright and consent questions. Voice cloning enables fraud.	Make a jingle for a class rule. Discuss who owns it. Never clone a real student or teacher’s voice.

Agents and computer-use	A language model in a loop with tools: it clicks, browses, runs code, then checks the result.	Multi-step tasks like research or booking, under supervision.	Errors that pile up, and hidden instructions in web pages (prompt injection).	Teacher demo only: an agent plans a fictional field trip. The class audits each step.
Small and open-weight models	Models whose files you can download. Smaller ones run on a laptop, even offline.	Privacy-sensitive work, experiments, learning how models work.	Less capable than the biggest closed models. Running them well takes some skill.	Run a small model on a school laptop. Compare it with a big one on the same prompts.
World models	Research systems that predict how a scene changes so they can simulate environments.	Mostly demonstrations and robotics research.	Early-stage. Not a classroom tool today.	Watch a demo. Ask: does it understand physics, or imitate video?

The major labs

Lab	Family	Weights	Student age rules	Education features
Anthropic	Claude	Closed	Consumer accounts are 18+. Under-18 use is through other products built on it.	Learning mode (Socratic style)
OpenAI	ChatGPT / GPT	Closed (some open-weight releases)	13+ with parental consent for ages 13–17	Study Mode, parental controls, ChatGPT Edu
Google	Gemini, Gemma	Closed (Gemma is open-weight)	Varies by country, account and feature. Consumer accounts are generally 13+ (older in some countries); parents can turn on supervised access for younger children in some regions (not the EEA, Switzerland or UK). School accounts follow the administrator's settings.	Guided Learning, NotebookLM, Gemini for Education
Meta	Llama and successors	Llama was open-weight. Check the license of newer models.	Varies by app	None specific
xAI	Grok	Current hosted models closed (Grok-1 weights released in 2024)	Check current terms. Not recommended as a classroom default.	None specific
DeepSeek	DeepSeek	Open-weight	Hosted app raises data-privacy questions. For schools, prefer running it locally or avoid it.	None specific
Alibaba	Qwen	Many open-weight models	Varies	None specific
Moonshot	Kimi	Open-weight models	Varies	None specific
Mistral	Mistral	Some open-weight	Varies	None specific

Snapshot from October 2026, compiled from company help pages and news reports. Product names, ages and features change often, so check each company's current terms before any student uses a tool. "Open-weight" means the model files can be downloaded, which is not the same as fully open source. For today's scores see arqiv.si/ai/where-we-are/.

Strengths and limits

Usually good at

- Explaining a concept several ways
- Summarizing a document you give it
- Drafting, rewriting and translating
- Writing and explaining code
- Generating practice questions

Still tricky

- Made-up facts, sources and quotes
- Agreeing too much (sycophancy)
- Exact counting and decimals
- Riddles that resemble famous ones
- Recent events after the training cutoff
- Hidden instructions in documents
- Bias in images and examples

In a Harvard/BCG study of 758 consultants, people using AI were faster and produced higher-quality work on tasks inside AI's abilities, but were 19 percentage points less likely to be correct on a task just outside them (Dell'Acqua et al., 2023). You cannot tell where the edge is by looking, so test.

Which tool for which job?

Task	Best fit	The catch
Check my own essay for unclear parts	A chat model used as a critic, with a rubric. You do the revising.	Do not let it rewrite the essay. That is the part that builds your skill.
Solve a tricky multi-step math problem	A reasoning model, after you try it yourself first.	Check the answer by estimating and working it by hand.
Find out what happened yesterday	A tool with web search turned on, then open its sources.	Without search, models only know their training data and may invent recent events.
Learn how a leaf cell works	A chat model in a study or tutor mode that asks you questions.	Check key facts in your textbook. It can still be wrong.
Describe what is in a science photo	A multimodal model, then compare with your own notes.	It may miss small details or invent them.
Analyze private student data	Do not paste it into a public chatbot. Ask your school what is approved.	Privacy rules apply, and a hosted AI may store what you type.

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ARQIV resources are written by people and checked against the sources below as of October 2026. AI tools and policies change quickly, so verify anything time-sensitive.

Sources

1. Dell’Acqua et al., Navigating the Jagged Technological Frontier, 2023.
2. OpenAI Help Center, Is ChatGPT safe for all ages?
3. Google, Gemini Apps Help: age requirements, supervised access and Workspace for Education rules (support.google.com/gemini).
4. Open Source Initiative, The Open Source AI Definition (opensource.org/ai).
5. xAI, Open release of Grok-1 (March 2024).
6. Stanford HAI, AI Index Report.
7. Artificial Analysis (artificialanalysis.ai).

Interactive versions: arqiv.si/teachers/ai-literacy/