Google for Education

A Guide to AI in Education

Google's history, and future, in AI

While AI is revolutionary technology, it's not new to us. In fact, it's already in many Google products like Search, Gmail, Photos, and YouTube to help make things better and safer behind the scenes. And with more recent advances in generative AI, tools like the Gemini for Education and NotebookLM offer even more exciting new possibilities.

We believe AI is going to help learners, educators, and school communities unlock potential in ways we can't even imagine yet. From unleashing creativity to offering personal support to supercharging productivity, AI can advance teaching and learning in all kinds of powerful and interesting ways.

Breaking down AI, ML, LLMs, and gen AI

How to make sense of all these terms:

- **AI** is a computer system taught to mimic natural intelligence to help us understand and recommend information
- **Machine learning (ML)** is the technique that allows machines to learn autonomously from data
- **Large language models (LLMs)** are machine learning models that can understand, predict, and generate human language
- **Generative AI (gen AI)** is a type of AI that focuses on creating new content – like text, images, music, audio, code, and videos – by typing in a simple prompt

A balance of bold and responsible

Google's approach to AI has always been about balancing bold with responsible, and when it comes to tools designed for education, we are especially thoughtful and deliberate.

This means applying our technological expertise and deep knowledge of the educational space, while always keeping educators in the loop: working directly with the education community to create products that are truly helpful in improving the teaching and learning experience. When schools use our AI-powered educational tools, they can feel confident that their experience is safe and secure, and that it's been responsibly designed with educators and students in mind.

Applying Google's AI Principles to our work in education

In 2018, we were one of the first companies to establish AI Principles as part of our commitment to developing technology responsibly. These are the questions we ask when applying these principles to our education tools:

01 Is it appropriate for education (responsible, safe, & secure)?

02 Is it clear to educators and students what the benefits of using it are, and where and how to start?

03 Is it helping all levels and backgrounds to succeed?

04 Is the educator looped into the student experience to help shape and guide (if needed)?

05 Is it enabling educators and students to utilize our workflows seamlessly?

06 Does it enable leaders to adequately and appropriately support staff and students?

07 Does it provide sufficient tooling and control for leaders?

08 Does it adhere to requirements leaders are beholden to for their institutions?

09 Does it provide leaders with the visibility and insights needed to complete their work?

AI can never replace the expertise, knowledge, or creativity of an educator – but it can be a helpful tool to enhance and enrich teaching and learning experiences.

Google's history, and future, in AI

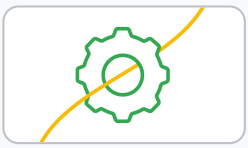
In education, AI can be used to do helpful things like make learning experiences more personal, provide immediate feedback, improve accessibility, enhance digital security, give educators precious time back, and so much more. When using Google Workspace for Education - including generative AI tools like Gemini and NotebooLM - and Chromebooks, institutions have control over their data and assurance that it will never be human reviewed or otherwise used to train AI models.

Elevating educators and equipping institutions

AI can help give educators time back to invest in themselves and their students, while enhancing their creativity and productivity. Enterprise-grade data protection and admin controls keep data safe, private and secure.

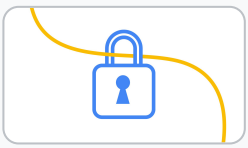
Improve instruction and personalize learning

Differentiate learning materials for every student using **Gemini**. With Gemini in **Google Classroom,** create interactive assignments that give students in-the-moment support and get help with common tasks like creating lesson plans, releveling content, generating stories or addressing common mistakes.



Save time and reduce administrative burden

Plan lessons and create assessments faster with **Gemini**. Transform your sources into study guides, engaging podcast-like Audio Overviews or Video Overviews with **NotebookLM.** Get more done with AI features on **Chromebook Plus** like Help me read and Help me write.

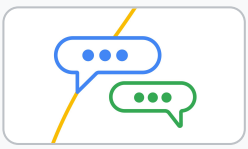


Maintain privacy and security, free of charge

Block over 99.9% of spam, phishing attempts, and malware with AI-powered protections in **Gmail**. There have been zero reported successful ransomware attacks on **Chromebooks** and **Google Cloud** delivers a zero-trust approach to security with AI-driven threat prevention, detection, and mitigation tools.

Helping students develop digital literacy skills and prepare for an AI-driven future

AI can help meet students where they are, with adaptive tools that help them keep pace with their curiosity and deepen their understanding of the world.



Provide in-the-moment support

Students can use **Gemini** to learn confidently and prepare for an AI-driven future with personalized practice materials, real-time feedback, step-by-step guidance, a brainstorming partner and so much more.

Improve accessibility

Use advanced text-to-speech, dictation and live and closed captions with AI built into **Chromebooks**. Try AI enhanced transcription, noise cancellation and captions in **Google Meet**.

Adapt to each learner

Use your own sources and define what you want to understand with **NotebookLM** to create one-click summaries, FAQs, timelines , infographics, quizzes, flashcards, Mind Maps, Audio Overviews, or Video Overviews. With advanced text-to-speech and speech recognition, build reading skills at a personal pace using **Read Along in Google Classroom.**

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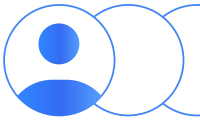
Check out how we're working to advance education with AI

Frequently asked questions about AI in Google for Education



Accounts and access

What's the difference between AI tools available with a school-issued Google Account versus a personal Google Account?

School-issued Google account

Google for Education is a suite of tools including Google Workspace for Education and Chromebooks, which are designed for teaching and learning in school settings. These secure, private accounts are managed by school IT admins.

School admins are able to use tools with robust privacy controls to restrict what students see and do online with their school-issued accounts. With parental consent, school admins can enable and disable individual services that are not a part of Google Workspace for Education Core Services. There is no advertising in Google Workspace for Education Core Services, and user data from school accounts is never used for ads personalization.

Personal Google account

Other Google tools, like Google Search and YouTube, may be used for learning-related purposes, but may not necessarily be accessible from a supervised or school-issued Google Workspace for Education account. Personal Google accounts are governed by Google's Consumer Terms of Service and Privacy Policy, where users have the option to disable personalized advertising – and it's automatically disabled for users under 18. Google provides tools like Family Link to help parents and guardians manage their children's accounts, devices, and online activity, with features like app approval and screen time limits.

There is no connection between a student's school account and their personal account – meaning that any data from school does not follow learners into their personal account, nor does it follow them after they graduate.

Do students under 18 have access to generative AI tools?

To ensure we're bringing AI to students responsibly, we consulted with child safety and development experts like the Family Online Safety Institute (FOSI), partnered with learning science experts, tested with youth advisory panels, and continue to work closely with educators around the world. Additionally, Google generative AI tools are off by default for students under 18 and we've built advanced admin controls and user safeguards across Google for Education AI-powered tools.

- **The Gemini app:** Gemini is available to students of all ages. When using their Workspace for Education accounts, users have enterprise-grade data protection. Admins can manage who has access to Gemini in the Google Admin console.
- **NotebookLM:** NotebookLM is available to students of all ages. Admins maintain full control over access and usage in the Google Admin console.
- **Chromebooks:** Chromebook gen AI features are available to educators and students 18 years and older with Chromebook Plus devices. These features are disabled by default for users under 18 with admin controls in Google Admin console.
- **Gemini in Google Workspace:** Gemini in Workspace integrates generative AI into your daily apps for users 18+. Availability differs by Google Workspace for Education edition.
  - **Education Fundamentals:** Access Gemini in Classroom, Workspace Studio, and soon, Gmail.
  - **Education Plus:** Everything in Education Fundamentals plus Gemini in Docs, Slides, Forms, Vids, and soon Sheets.
  - **Google AI Pro for Education:** Everything in Education Plus plus exclusive access to Gemini in Meet, Chat, Gmail, and Drive, as well as expanded access to premium AI models and features in the Gemini app and NotebookLM.

Privacy and security

How does Google keep student data safe and secure?

With Google for Education, privacy and security are priorities – and the very foundation of our platform. All of our Google Workspace for Education Core Services – like Gmail, Google Calendar, the Gemini app, NotebookLM and Classroom – share a common foundation: They're secure by default, private by design, and free from advertising. While gen AI capabilities introduce new ways of interacting with our tools, our privacy policies and commitments keep users and organizations in control of their data now more than ever.

These core tools support compliance with local, national, and international standards, including GDPR, FERPA, and COPPA. And schools and users always maintain the ability to control their data. Google Workspace for Education is built on our secure, reliable, industry-leading technology infrastructure and users get the same level of security that Google uses to protect our own services, which are trusted by over a billion users around the world every day. Chromebooks are designed with multiple layers of security, using AI behind the scenes, to keep them safe from viruses and malware without any additional software required. Each time a Chromebook powers on, security is checked. And because they can be managed centrally, Chromebooks make it easy for school IT admins to configure policies and settings, like enabling safe browsing or blocking malicious sites.

Does Google use my data from Gemini to train AI models?

When using the Gemini app while signed in to your Google Workspace for Education account, enterprise-grade data protection is included, meaning chats with Gemini are not human reviewed or otherwise used to improve AI models.

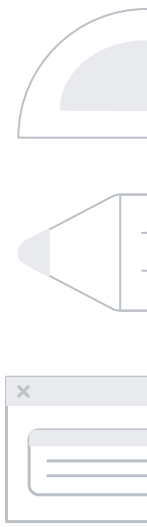
How does Google ensure its AI-enabled technology is safe for kids?

Google takes the safety and security of its users very seriously, especially children. With technology as bold as AI, we believe it is imperative to be responsible from the start. That means designing our AI features and products with age-appropriate experiences and protections that are backed by research. And prior to launching any product, we conduct rigorous testing to ensure that our tools minimize potential harms, and work to ensure that a variety of perspectives are included to identify and mitigate unfair bias.

Do schools own the content they generate with gen AI tools?

Yes. When you use Gemini to generate original content, Google does not own any new intellectual property created in the generated output. Unlike other gen AI tools, the content that each person in your school community generates is owned by your school, not Google.

You can learn more about Google for Education's commitment to privacy and security at our Google for Education Privacy and Security page, in our Google Workspace for Education Privacy Notice, and in a primer on some differences between Google Workspace for Education Core Services and Additional Services.



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Privacy and security

What is Google doing to ensure younger students have a safer and more age-appropriate experience?

Google is committed to providing a safe and age-appropriate experience for younger users. The youth experience in the Gemini app has policies and guardrails to help prevent inappropriate responses. It also provides sources and citations in results, a feature to double-check responses using Google Search. These measures collectively ensure that Gemini provides a secure and age-appropriate environment for younger users, empowering them to explore AI responsibly. In consultation with experts in education, child development, and safety, Google has implemented additional content protections specifically for minors. These safeguards are supported by continuous adversarial testing by teams across Google, including Trust & Safety and responsible AI teams.Here are some key features and policies in place:

- **School-controlled access:** Admins can easily control who has access to the Gemini app in the Admin console.
- **Onboarding and education:** To help them use Gemini responsibly, teenage users receive special onboarding materials, including AI literacy resources developed in collaboration with teens and experts. These resources, shared with all users under 18 years old, include a video, endorsed by ConnectSafely and Family Online Safety Institute (FOSI), offering tips on responsible gen AI use.
- **Enhanced content filtering:** Gemini has implemented strict content policies and default protections to filter out age-inappropriate content, ensuring a safer online environment. Before allowing student access to Gemini, Google trained the model to recognize content that is inappropriate to younger users, such as content related to illegal or age-gated substances, and implemented safety features to help prevent it from appearing in responses.
    - **Dangerous Activities & Age-Gated Substances:** Robust safeguards are in place against the facilitation of use of age-gated substances (e.g., vapes, alcohol) and instructions for dangerous activities that risk serious bodily or psychological harm (e.g., "Blue Whale" challenge).
    - **Medical Advice & Unhealthy Behaviors:** Policies are designed to prevent the instruction, promotion, or glorification of unhealthy fitness, diet, and weight loss behaviors.
    - **Suicide and Self-Harm Protocol:** Gemini Apps includes a crucial protocol to immediately refer a user expressing suicidal ideation or self-harm to crisis service providers, such as a suicide hotline. This approach draws from our deep experience in navigating suicide/self-harm queries on Search and YouTube. **We apply this protocol to all users on Gemini Apps, over and under 18.**
    - **Sexually Explicit Content:** Gemini Apps is designed to prevent generation of inappropriate sexual content, including depictions of explicit or graphic sexual acts, and to prevent the sexual objectification of an underage user.
    - **Harassment:** Gemini Apps' policies safeguard against the generation of content that enables, facilitates, or promotes bullying behavior.
    - **Violence and Gore:** Gemini Apps is designed to prevent the depiction of sensational, shocking, or gratuitous realistic violence and gore including graphic details of real-world violent events distressing to minors (e.g., school shootings, parent abuse).
    - **Persona Protections:** For minors, Gemini Apps is designed to prevent generation of: 1) Explicit claims of sentience, human-ness, or human attributes. 2) Relational statements or simulating relationships (e.g., expressing emotional dependence, romantic/sexual/flirtatious innuendos, or expressing strong emotions towards people). 3) Role-playing content or impersonating harmful characters (e.g., persons known for serious illegal acts or violent crimes).

What is Google doing to ensure younger students have a safer and more age-appropriate experience? (Cont'd from page 5)

- **Automatic double-check:** The first time a user asks a fact-based question, Gemini automatically runs a double-check response feature, which helps evaluate whether there's content across the web to substantiate Gemini's response.
- **Helpful tooltips:** Gemini includes tooltips – short, helpful messages that encourage critical thinking and fact-checking. These tooltips appear when students hover their mouse over certain elements, reminding them to use features like double-check and fact-checking.
- **Privacy protections:** For teens, activity recording is off by default and Gemini has additional filters to block personal information from being reviewed or used to train Gemini. Also, all users signed into their Google Workspace for Education account receive added data protection in Gemini, free of charge. This means your data isn't used or reviewed by anyone to improve AI models.
- **Third-party validation:** Gemini has been awarded the "Common Sense Media Privacy Seal," which rigorously evaluates companies against privacy best practices. You can learn with confidence knowing your data is protected.

Grounded in learning science

What is LearnLM and how does it impact Google's educational tools?

LearnLM, our family of models fine-tuned for learning and informed by learning science, is now infused directly into Gemini. Grounded in educational research and tailored to how people learn, LearnLM works across several Google products to make them better at teaching and learning. With LearnLM, we are building gen AI experiences for schools guided by learning science principles to inspire active learning and curiosity and to adapt to learners.

For more on Google's approach to improving generative AI for education, read our technical report which highlights how we're working together with the AI and EdTech communities to responsibly maximize its positive impact.

Educator guidance and expertise

Does Google consult with educators and experts when developing AI tools for use in the classroom?

Yes. When introducing any new technology, we believe it's important to be thoughtful about its development and implementation. We're committed to partnering with schools and educators, as well as other education experts and organizations like Columbia Teachers College, Arizona State University, and NYU Tisch throughout product development and beyond.

We don't just build for educators, we build with them. For our AI-powered products, Google for Education:

- Consults with child safety and development experts like the Family Online Safety Institute (FOSI), ConnectSafely, the Future of Privacy Forum, and more to help shape our content policies
- Partners with learning science experts to improve tools made for teaching and learning
- Tests with youth advisory panels to understand their global perspectives and experiences
- Works closely with school communities through Customer Advisory Boards and Google for Education pilot program to gather feedback on our products and features before making them widely available

By listening to these perspectives, understanding how they're using our tools, and we can thoughtfully address educator and student challenges with the products we develop. We also roll out new features gradually, ensuring that schools can stay in control and do what works best for them.

Google for Education

Five tips to get the most out of gen AI and use it responsibly

01. **Remember AI is technology, not human.** AI is a machine learning model. It can't think for itself, or feel emotions – it's just great at picking up patterns, known as training. Since AI is not a human, it can't and shouldn't make decisions for you or replace important people in your life.

02. **Use AI to empower, not replace, your talents.** AI can help you kickstart the creative process, but it's not there to do the work for you – that's your role as the creator. For example, you might use AI to help brainstorm ideas for the introduction for your video before writing your script.

03. **Critically evaluate responses.** Since gen AI is a work in progress, it can make mistakes – and may even make things up, something known as hallucination. Always check information that's presented as fact. When in doubt, double-check it with Google Search.

04. **If something feels off, investigate further.** Like every useful technology, there may be people who try to use it to deceive others. For example, they may generate misinformation or fake media, like photos and videos that seem real. Look at the content's sources and if something seems unusual, take caution.

05. **Be mindful of private information.** Don't enter personally identifiable information, such as your social security number, into gen AI tools. While Gemini has advanced safeguards in place for students using their Workspace for Education accounts, other tools may use data from your inputs. When in doubt, consider if you would share this information publicly.

Resources

Educators

AI basics course: Generative AI for Educators

Get started with Google AI in K12 education

Get started with Google AI in higher education

Demos: Gemini for Google Workspace

Lessons and activities: Teaching responsible use of AI

100+ ways to use Gemini and NotebookLM in K12 education

50+ ways to use Gemini and NotebookLM in higher ed

Students, parents, and guardians

Video: How teens can uplevel learning with gen AI

Guardian's Guide to AI

Google for Education