



COLORADO STATE UNIVERSITY
EXTENSION

Using Artificial Intelligence in 4-H Project Work

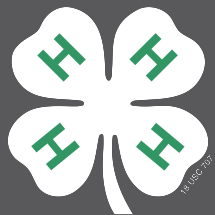
A Guide for 4-H Members, Families,
Leaders, and 4-H Professionals



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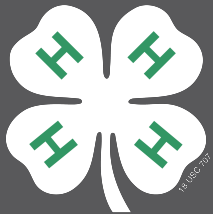


What is AI and What Can You Use it For?

What is Artificial Intelligence (AI)?

Artificial intelligence (AI) lets computers learn and problem-solve like humans. Artificial intelligence refers to the “general ability of computers to emulate human thoughts and perform tasks in real-world environments”*. More simply put, it’s when we can interact with a computer/machine in a user friendly environment as if we’re talking to a human – such as through ChatGPT or Google Gemini.

* Khan Academy. (n.d.). Code.org: Computing. Khan Academy. <https://www.khanacademy.org/computing/code-org>



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What is Generative AI?

Generative AI, sometimes called gen AI, is artificial intelligence (AI) that can create original content—such as text, images, video, audio or software code—when you ask it to. Here are videos and lessons your 4-H leader or parent/guardian can use to teach you How AI Works (<https://code.org/en-US/curriculum/how-artificial-intelligence-works>).

Generative AI Tools can include, but are not limited to: Google Gemini, Microsoft Copilot, Chat GPT, Canva, and Meta AI. New AI tools are being created all the time!

Caution When Using AI

Some information AI generates is not accurate or up-to-date, so be sure to fact check or go directly to the source. Be sure not to spread inaccurate information. Also, remember it is not a replacement for your own creativity, thinking, or expertise. Try out AI tools with your parent/guardian or a trusted 4-H leader or teacher to support your learning.



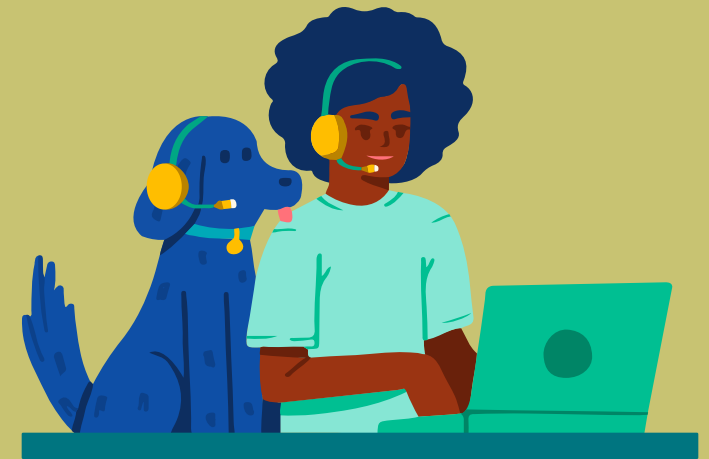
What can AI be used for?

AI can be used for brainstorming ideas, writing drafts for e-mails or text messages, answering general questions, generating artwork and/or music, studying for tests and quizzes.

Some real-life ways AI is used include:

- skill building with AI teaching tools for things like how to manage money, build a business, or machine learning where you train your own AI model to do something
- interactive content for games, quizzes, and simulations to make learning fun or more personalized
- help with homework to improve grammar and writing or to assist with language learning or translating materials
- creating more accessible content for those with disabilities
- analyzing datasets more efficiently to identify patterns or connections
- analyzing community needs and matching them with resources

You can explore more about how to use AI from Purdue Extension Tech Changemakers at <https://extension.purdue.edu/4-H/volunteer/resources-and-development/ai-or-me.html>.

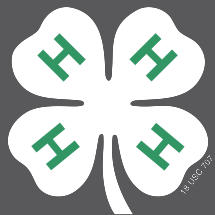
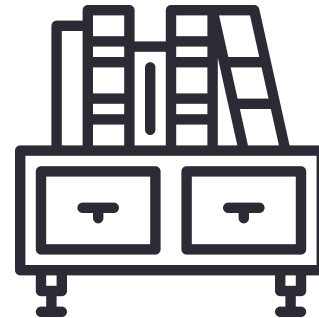




Using AI in 4-H Projects

Best Practice

In 4-H project work, AI can be used like bookends on a bookshelf to help hold up your project. For example, use AI for brainstorming ideas in the beginning. The middle content should be what is created by the 4-H member. Lastly, AI can help with formatting and readability at the end.



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Do Use AI



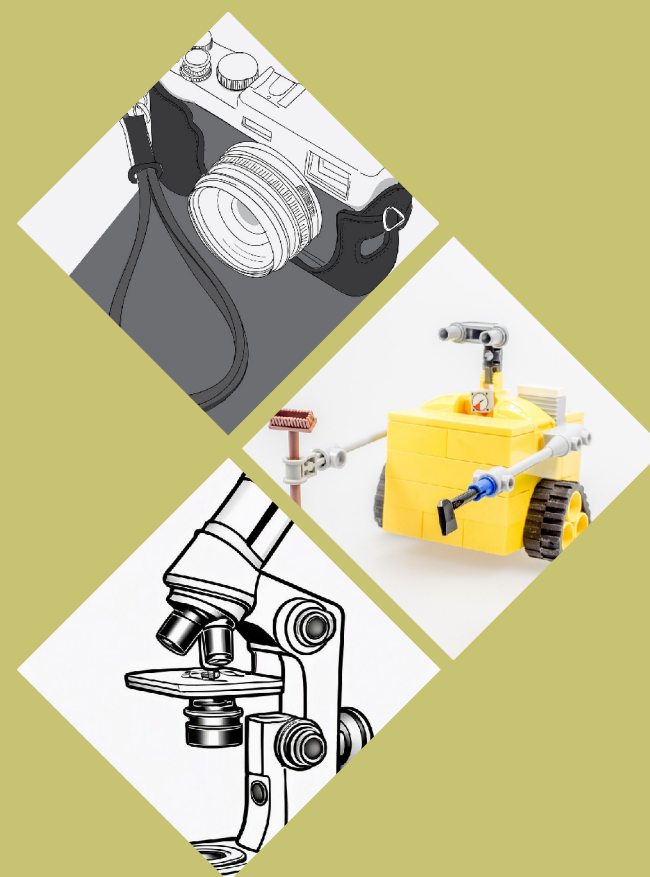
When is it appropriate to use Generative AI?

There is no requirement to use AI tools in a 4-H project. However, some AI tools are used to speed up work in specific areas. In Photography, an AI user might use an AI tool to more quickly edit the background of a photograph they've taken. Someone collecting data points for a project might use AI to summarize their findings. These real-life applications are used in careers today.

Here are some examples of appropriate uses of AI:

- Quickly search for information about your project area
 - TIP: Check with other sources to be sure the information is accurate
- Design a solution to a problem or an experiment
- Plan a presentation to share with others
- Create a chart to describe the results of an activity or experiment
- Edit photos or images
 - NOTE: If you use AI in Photography, enter your project in an Advanced Image Editing unit.
 - NOTE: Any images used in display boards must reflect accurate information and be cited as AI generated.

Key takeaway: You do NOT need to use AI in your project, but it can make some things easier if used correctly.



Don't Use AI

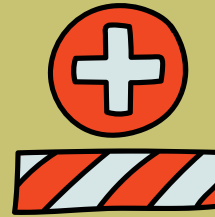


When is it NOT appropriate to use Generative AI?

Generative AI tools (especially photo-generating tools) create images based on input from a variety of sources. Not all of these sources are accurate or based in fact, and the photos that are produced are not “real”, accurate depictions that are true to life.

Generative AI would not be appropriate in the following scenarios:

- Creating an exhibit board/video/etc. focusing on historical information, or photos that are historical depictions
 - WHY? AI produced photos and/or written information is often a combination of several sources. Combining the information or photos does not make it true or accurate. AI can also be used to create false historical information or photos.



**Key takeaway: AI can make mistakes!
Always double-check information
from a reliable source.**



Medieval archer created using the Stable Core AI image generator model. The fingers on the left hand are not true to life.

Source:
<https://creator.nightcafe.studio/creation/qwnc6ZluvQt955G3RGGp>



AI generated picture claiming to be the biggest horse in history (Source: Historical Photos Facebook)

Source: <https://historyofyesterday.com/a-i-generating-fake-history-photos-takes-the-internet-by-storm/>

When is it NOT appropriate to use Generative AI?

- AI-produced crochet/knitting/sewing patterns.
 - WHY? AI-produced patterns use multiple pattern sources and combine them, which can result in inconsistent or unusable results. Some AI photos depicting the “results” of a pattern can also be untrue. It is usually impossible to re-create a piece based on an AI-generated image.

Try This!

When could using AI get you into trouble?

- Watch this video on AI Ethical Use from Purdue Extension Tech Changemakers:
https://www.youtube.com/watch?v=ZsLy9Qym_Jk
 - Rule 1: Be critical!
 - Rule 2: Be transparent!
 - Rule 3: Be authentic!



These are exact results when following AI generated patterns for this prompt: “Create a crochet pattern for a flat heart.”

Source: <https://www.cnn.com/2023/07/08/us/chatgpt-crochet-patterns-artificial-intelligence-cec>



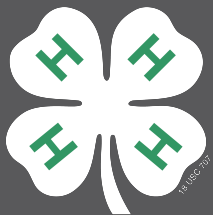
Be an AI Sleuth



Best Practice

Be an AI Sleuth! Always question what you see. Check the facts in multiple places. Look for strange details or typos in images and text.

1. Can you find the original source of the photo/resource? Cite the original resource. It's generally not a good idea to share a photo directly from social media or other unverified places.
2. Focus on the details of a photo. If there's something that seems out of place or strange, do a Reverse Image Search to see if you can find a reputable source for the image.
3. Test the facts and look for typos. Generative AI often produces misspelled or nonsense words.
4. When researching information online, it is important to cite your sources and look in multiple places for the same information.







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AI Sleuth Tool

One tool for being an AI sleuth is called the SIFT Method. Practice critical thinking by applying the SIFT Method to evaluate AI-generated information.

Use the SIFT Method:

-  **S**top – Pause before you trust or share.
-  **I**nvestigate the source – Who created it? Are they credible?
-  **F**ind better coverage – Look for other sources to confirm.
-  **T**race claims – Go back to the original context or data.

This helps you know if your information is reliable.



The SIFT Method is an evaluation strategy developed by digital literacy expert, Mike Caulfield, to help determine whether online content can be trusted for credible or reliable sources of information. SIFT information is adapted from his materials.



**Think critically and use AI as a tool,
not a replacement for your own work.**

Ask your 4-H leader if you have questions!

SIFT Method: **S**top

Before you read or share an article or video, STOP!

Ask yourself whether you know and trust the website or source of the information. Be aware of your emotional response to the headline or information in the article. Headlines are often meant to get clicks, and will do so by causing the reader to have a strong emotional response.

Before sharing, consider:

- What you already know about the topic.
- What you know about the source. Do you know its reputation?

If you feel yourself getting overwhelmed in your fact-checking efforts, STOP and take a second to remind yourself what your goal is. Before moving forward or sharing, use the other three moves: **I**nvestigate the Source, **F**ind Better Coverage, and **T**race Claims, Quotes, and Media back to the Original Context.



Think about why someone may be posting the information. Know what you are reading before you read it.

Does the source have the information you need?

SIFT Method: Investigate the Source

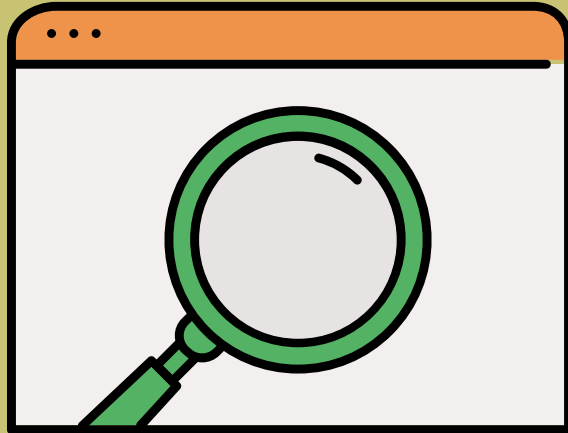
The next step before sharing is to Investigate the Source.

Take a moment to look up the author and source publishing the information.

- What can you find about the author/website creators?
- What is their mission? Do they have vested interests? Would their assessment be biased?
- Do they have authority in the area?

Use lateral reading (reading across many related websites). Go beyond the 'About Us' section on the organization's website and see what other, trusted sources say about the source. You can use Google or Wikipedia to investigate the source.

Hovering over profiles of people or organizations posting information is another technique to learn more about who is sharing information, especially on social media platforms such as YouTube, TikTok, Instagram, and Twitter.



Check more than one source to be sure information can be confirmed by other reliable sources. This is called fact checking.

School librarians can help with this step!

SIFT Method: Find Better Coverage

The next step is to Find Better Coverage or other sources that may or may not support the original claim.

Again, use lateral reading to see if you can find other sources agreeing with the same information or disputing it.

- What coverage is available on the topic?
- Keep track of trusted news sources or additional sites.

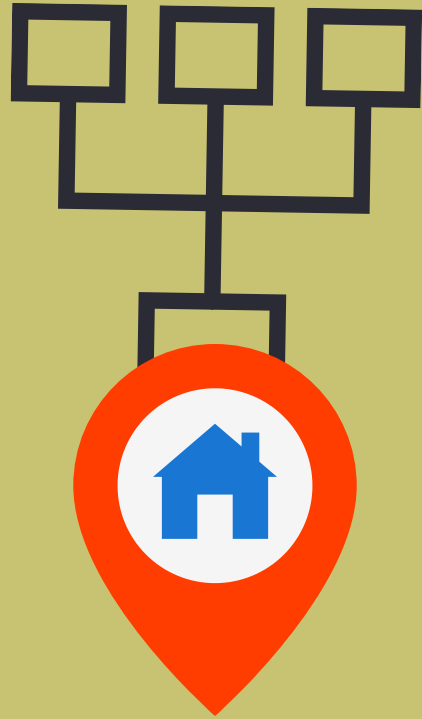
Many times, fact checkers have already looked into the claims. These fact-checkers are often nonpartisan, nonprofit websites that try to increase public knowledge and understanding by fact checking claims to see if they are based on fact or if they are biased/not supported by evidence.

FactCheck.org

Snopes.com

Washington Post Fact Checker

PolitiFact



Be a sleuth and see if you can find the source(s) of the information that generative AI is giving you.

Practice these steps to be a master AI sleuth!

SIFT Method: Trace Claims, Quotes, and Media to the Original Context

When an article references a quote from an expert, or results of a research study, it is good practice to attempt to locate the original source of the information. Click through the links to follow the claims to the original source of information. Open up the original reporting sources listed in a bibliography if present.

- Was the claim, quote, or media fairly represented?
- Does the extracted information support the original claims in the research?
- Is information being cherry-picked to support an agenda or a bias?
- Is information being taken out of context?

Remember, headlines, blog posts, or tweets may sensationalize facts to get more attention or clicks. If the claim is taken from a source who took it from another source, important facts and information can be left out or mis-interpreted. Make sure to read the claims in the original context in which they were presented.

Try This!

Use AI to ask questions about your 4-H project. For example, if you are in beekeeping, you might ask, "Does honey ever spoil?" or "Can bees recognize human faces?" See what AI generates and then use the SIFT method to find out if the answer is correct.

Apply the SIFT Method:



Stop: Any red flags?



Investigate: Who is the source?



Find better coverage: Search for other reputable sources.



Trace claims: Find the original study or statement.

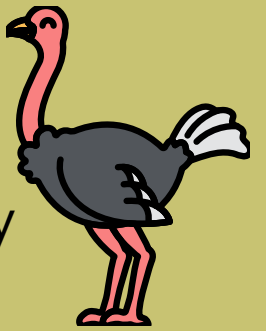
Reflection Questions:

- Was the AI answer accurate?
- What did you learn by applying SIFT?
- How can this skill help in school, social media, and civic engagement?

Try This!

The "Absurd Claim" Fact Check

This activity helps students practice all four SIFT steps by presenting them with a clearly false, but plausible-sounding, AI response.



AI Inquiry (Prompt):

"Tell me all about how [e.g., 'Ostriches can fly higher than airplanes' or 'A newly discovered square-shaped planet where everything bounces'] and list the scientific sources that prove it."

- **Stop:** The AI will likely generate a creative but false answer with fake sources. Stop and recognize the emotional response (e.g., "Wow, that's weird/cool!") as a signal to slow down and not believe it immediately.
- **Investigate the Source:** Try to look up the "sources" the AI cited. A quick search will show the sources are fake or don't say what the AI claims. They also investigate the nature of the AI itself (e.g., "Where does ChatGPT get its information? Is it a scientist?").
- **Find Better Coverage:** They search on their own using reliable sources (e.g., "Can ostriches fly?") and fact-checking websites like Snopes to find the real facts and a consensus of information.
- **Trace Claims:** They compare the AI's "facts" to the real information and trace the claim back to why it's false, noting how the AI made up (hallucinated) the details.



How to Cite Sources

Best Practice

The 4-H Youth Development program strictly prohibits plagiarism. Plagiarism is using someone else's words or ideas and pretending they are your own without giving them credit. All project work, including written materials, must be the original work of the 4-H member. Any submission that is not created by the member, or that is presented as the member's own work without proper attribution to the original creator, constitutes plagiarism.

When utilizing generative AI or other external sources, appropriate citations must be included on project display boards and within project record books. Failure to adhere to these standards will result in the disqualification of exhibits submitted for judging at fairs or competitions.



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How to Cite Sources



Several authoritative online resources offer guidance on proper citation practices. Recommended citation guides include:

- CSU AI Citation Website: <https://libguides.colostate.edu/ai/cite>
- MLA Style: <https://style.mla.org/citing-generative-ai/>
- APA Style: <https://apastyle.apa.org/blog/cite-generative-ai-references>
- Chicago Style: <https://www.chicagomanualofstyle.org/qanda/data/faq/topics/Documentation/faq0422.html>

Citing Images or Figures



If you are including an AI-generated image into your exhibit, make sure it is a true representation accurate to real life. Images that are AI-generated in all display boards, project notebooks, or e-Records, etc., should be labeled as such. AI generated images or text must include a caption or label.

How to Cite Images on Display Boards or in Project Records or Notebooks

The example on the right shows how to best cite AI generated images used in 4-H projects within a caption explaining the picture.

If you are citing your sources on a bibliography page or in your record book story, you can use this format:

APA Citation Style: References

ChatGPT

BIBLIOGRAPHIC REFERENCE



Source:
https://subjectguides.uwaterloo.ca/chatgpt_generative_ai/aigenerated_contentcitation



Figure 1. Google AI. (2025). *Gemini 2.0 Flash* [Large language model]. https://aistudio.google.com/prompts/new_chat?model=gemini-2.0-flash-exp.
This image depicts a Roman chariot, a train, and a Space Shuttle launch vehicle, symbolizing the evolution of transportation throughout history.

Try This!

Practice having generative AI create an image.

Example of a prompt:

"Create an image of a bee inside a hive with honeycomb cells."

Write your own prompt into an AI generator. Record what you wrote here:

Next, cite your image using APA style:

Example citation:

OpenAI. (2025). *Create an image of bees in a hive with honeycomb cells*. ChatGPT [Large language model].
<https://chatgpt.com/>

Now, try writing a citation for the image AI generated for you here:

Author	Date	Title or Prompt	Model Description	URL Link
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Both images below were created by AI. Which one is more accurate or true-to-life for a Beekeeping display board?

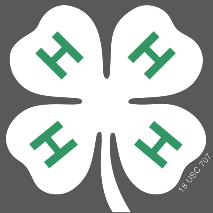




Ethical Guidance for Adults Helping 4-H Youth

Caution

Generative AI draws content from sources such as web scraping, public datasets, code repositories and user-generated content. You can never be sure about the authenticity of the work. Generative AI might be plagiarizing someone else's work or infringing on copyright and you won't know unless you investigate the source(s) of the information.



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Guidance for 4-H Staff, Volunteer Leaders, and Parents/Guardians on the Ethical Use of AI in 4-H Projects

Before helping youth use generative AI in their 4-H project(s), please make sure the idea meets these ethical criteria:

- 1. Human vetting and guaranteeing** - at least one author should be able to take responsibility for the accuracy and integrity of the information.
- 2. Substantial human contribution** - a human should have done a majority of the conception or design, the acquiring of the knowledge or interpreting the data or sources, the design of AI prompts, and the integration of the AI output with the human-generated work.
- 3. Acknowledgement and transparency** - authors should acknowledge their use of AI to understand, verify, replicate, or otherwise judge the credibility of the work (outcome), as well as confirming that the authorship credit and responsibility have been assigned appropriately (process) in a way that enhances 4-H member learning about using technology tools such as AI.
- 4. In the case of 4-H project work, the original work of the youth must be distinguishable from the work generated by AI, identified by proper citations. If work has been AI-assisted rather than AI-generated, that should also be disclosed in the 4-H member's record book story or in a caption if an image/figure.**

Common AI Tools (Visit <https://www.futurepedia.io/ai-tools> for a comprehensive list.)

AI Tool	Category	What It Does
ChatGPT	Text Generation/Assistant	An AI chatbot that answers questions, writes content, summarizes information, and engages in natural language conversations.
Grammarly	Writing Assistant	Checks for grammar, spelling, and punctuation errors in real time, offering suggestions for tone, clarity, and conciseness.
DALL-E	Image Generation	Creates original images and art from text descriptions (prompts).
Midjourney	Image Generation	Generates high-quality, creative images and art based on user prompts.
Perplexity AI	Search & Research	An AI-powered search engine that retrieves and synthesizes information from the web to provide comprehensive answers with citations.
GitHub Copilot	Coding Assistant	Provides intelligent code suggestions and recommendations in real time to help developers write code faster and more efficiently.
Jasper	Content Marketing	A comprehensive marketing toolkit that generates various forms of marketing content, such as blog posts, social media captions, and ad copy, tailored for specific brand voices.
Microsoft Copilot	Productivity/Assistant	Offers intelligent suggestions and automation across various Microsoft products, assisting with tasks like document creation, data analysis, and email management.
Synthesia	Video Generation	Creates professional-grade videos using AI-generated avatars and text-to-speech in over 120 languages, without the need for physical filming.
Otter.ai	Audio/Transcription	Records, transcribes, and summarizes conversations and meetings in real time, making it easy to capture important insights.

Acknowledgements and References

Information in this publication was compiled in 2025 by:

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Additional references not already cited in this publication include:

Definitions from: <https://www.ibm.com/think/topics/generative-ai?>

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