

Evolving AI Plans for LCC 2024 - 2026

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Direction and Steps

A. Establish an AI steering committee:

The steering committee is mandated to help curate the list of AI tools we use at LCC, document appropriate use of each tool and recommend best practices. The Committee will consist of 7 members: the ICT Coordinator (Fiona), one JS teacher, one MS teacher, one SS teacher, the Administrator overseeing AI (Tammy) and the IT director (Cinzia), the seventh member should be the Librarian (Laura).

B. Identify Benefits and Risks

All stakeholders must be able to identify the benefits and risks of AI. To support this understanding, we need to create a guide to support teachers and staff, as they explore the potential benefits and mitigate the risks of Artificial Intelligence (AI).

1. Potential benefits of using AI in education include:
 - i) Content development and differentiation;
 - ii) Assessment design and timely, effective feedback;
 - iii) Personalized learning;
 - iv) Creativity development;
 - v) New skill development;
 - vi) Increased efficiency.
2. Potential risks involved in using AI in education include
 - i) Plagiarism and academic dishonesty;
 - ii) Perpetuating content and societal biases;
 - iii) Compromised student privacy and unauthorized data collection;
 - iv) Diminished student and teacher accountability;
 - v) Overreliance on technology and decreased critical thinking.

Proper guidance with AI is essential for students and teachers. Without proper guidance, teachers and students are more susceptible to the risks of AI.

C. Guiding Principles for AI Use

The following principles guide the appropriate and safe use of AI and address current and future educational goals, teacher and student agency, academic integrity, and security. We commit to adopting department specific procedures to operationalize each principle.

1. **We use AI to help all of our students achieve their educational goals.** We will use AI to help us reach our school goals, including improving student learning, teacher effectiveness, and school operations. We aim to make AI resources universally accessible, focusing especially on bridging the digital divide among students and staff. We are committed to evaluating AI tools for biases and ethical concerns, ensuring they effectively serve our diverse educational community.

2. **We will adhere to school values and rules, IB policies and regulations.** AI is one of many technologies used in our schools, and its use will align with existing regulations to protect student privacy, adhere to Quebec measure 25, ensure accessibility for all students, and protect against harmful content. We will not share personally identifiable information with consumer-based AI systems. We will thoroughly evaluate existing and future technologies and address any gaps in compliance that might arise.
3. **We educate our staff and students about AI.** Promoting AI literacy among students and staff is central to addressing the risks of AI use and teaches critical skills for students' futures. Students and staff will be given support to develop their AI literacy, which includes how to use AI, when to use it, and how it works, including foundational concepts of computer science and other disciplines. We will support teachers in adapting instruction in a context where some or all students have access to generative AI tools.
4. **We explore the opportunities of AI and address the risks.** In continuing to guide our community, we will work to realize the benefits of AI in education, address risks associated with using AI, and evaluate if and when to use AI tools, paying special attention to misinformation and bias.
5. **We use AI to advance academic integrity.** Honesty, trust, fairness, respect, and responsibility continue to be expectations for both students and teachers. Students should be truthful in giving credit to sources and tools and honest in presenting work that is genuinely their own for evaluation and feedback.
6. **We maintain student and teacher agency when using AI tools.** AI tools can provide recommendations or enhance decision-making, but staff and students will serve as "critical consumers" of AI and lead any organizational and academic decisions and changes. People will be responsible and accountable for pedagogical or decision-making processes where AI systems may inform decision-making.
7. **We commit to auditing, monitoring, and evaluating our school's use of AI.** Understanding that AI and technologies are evolving rapidly, we commit to frequent and regular reviews and updates of our policies, procedures, and practices.

Responsible Use of AI Tools

Our school recognizes that responsible uses of AI will vary depending on the context and subject area, such as a classroom activity or assignment. Teachers will clarify if, when, and how AI tools will be used, with input from students and families, while the school system will ensure compliance with applicable laws and regulations regarding data security and privacy. Appropriate AI use should be guided by the specific parameters and objectives defined for an activity. Below are some examples of responsible uses that serve educational goals.

How AI can support Student Learning

- **Aiding Creativity:** Students can harness generative AI to spark creativity across diverse subjects, including writing, visual arts, and music composition.
- **Collaboration:** Generative AI tools can partner with students in group projects by contributing concepts, supplying research support, and identifying relationships between varied information.
- **Communication:** AI can offer students real-time translation, personalized language exercises, and interactive dialogue simulations.
- **Content Creation and Enhancement:** AI can help generate personalized study materials, summaries, quizzes, and visual aids, help students organize thoughts and content, and help review content.
- **Tutoring and learning support:** AI technologies have the potential to democratize one-to-one tutoring and support, making personalized learning more accessible to a broader range of students. AI-powered virtual teaching assistants may provide non-stop support, answer questions, help with homework, and supplement classroom instruction.

Teacher Support

Assessment Design and Analysis: In addition to enhancing assessment design by creating questions and providing standardized feedback on common mistakes, AI can conduct diagnostic assessments to identify gaps in knowledge or skills and enable rich performance assessments. Teachers will ultimately be responsible for evaluation, feedback, and grading, including determining and assessing the usefulness of AI in supporting their grading work. AI will not be solely responsible for grading.

Content Development and Enhancement for Differentiation: AI can assist educators by differentiating curricula, suggesting lesson plans, generating diagrams and charts, and customizing independent practice based on student needs and proficiency levels.

Continuous Professional Development: AI can guide educators by recommending teaching and learning strategies based on student needs, personalizing professional

development to teachers' needs and interests, suggesting collaborative projects between subjects or teachers, and offering simulation-based training scenarios such as teaching a lesson or managing a parent/teacher conference.

Research and Resource Compilation: AI can help educators by recommending books or articles relevant to a lesson and updating teachers on teaching techniques, research, and methods.

Adapted from Teach AI.org

D. Considerations and Criteria Adoption Technology and AI tool use at LCC :

- [Ethical Considerations](#)
- [Needs and Impact](#)
- [Accessibility and Usability](#)
- [Integration](#)
- [Data Security and Privacy](#)
- [Pedagogy](#)
- [Inclusive Learning](#)

[AI Terms to Know](#) (Glossary of AI terminology)

E. Development of basic AI Literacy expectations for Students and Teachers

- a. What is AI Literacy? AI literacy refers to the knowledge, skills, and attitudes associated with how artificial intelligence works, including its principles, concepts, and applications, as well as how to use artificial intelligence, such as its limitations, implications, and ethical considerations.
- b. Learning how AI works is an opportunity for learning [computational thinking](#) skills such as:
 - i. Decomposition: AI often tackles complex problems. Understanding these problems requires breaking them down into smaller, more manageable parts.
 - ii. Pattern Recognition: Machine learning relies on recognizing patterns in data. By understanding machine learning, students practice and develop skills in identifying patterns and trends.
 - iii. Algorithmic Thinking: Learning about AI exposes students to algorithms, step-by-step solutions to a problem, from simple decision trees to more complex processes.
 - iv. Debugging: As with any computational task, AI models can sometimes produce unexpected or incorrect results. Understanding and rectifying these issues are central to both AI and computational thinking.
 - v. Evaluation: AI frequently demands the assessment of different solutions to determine the best approach. This mirrors a key aspect of

computational thinking, where solutions are tested and refined based on outcomes.

- c. Integrate between 1 and 3 AI [lessons](#) into each grade level kindergarten through grade 11.

F. Teacher PD training:

Professional Development required for all teachers in how to use AI in the classroom by subject area.

- a. Introduction of how to use MagicSchool with Students in the classroom.
- b. Introduction to how to use Gemini with students in Grade 9 and up
- c. Introduction on how to use Canva AI with students.
- d. Documentation of how each teacher tried an activity that used AI.

G. Non-Teaching Staff training:

Non-teaching staff require specific training using AI tools

- a. Which tools to use
- b. Prompt development
- c. Data collection understanding
- d. Task specific learning
- e. Documentation of use and requirements for future research and development of tools best for LCC administration staff.
- f. Ensure Helpdesk team is comfortable with all AI tools adopted and can provide basic support.

H. The timeline:

- a. AI roll out must be planned and supported for 2024/2025 and beyond
- b. AI for 2025/2026
 - i. New tools
 - ii. Update PD

I. other:

Additional Information and Resources

Websites

[Visual representations of AI frameworks](#)

[Demystifying Artificial Intelligence \(AI\) for K-12](#)

[The Ultimate Guide to AI in Education: Benefits, Challenges, & Real-World Uses \(2024\)](#)

[Rubric for Evaluating AI Tools in Education](#)

[University of Toronto AI evaluation guide](#)

[LCC Guide to Citing AI use](#)

[Charter on the Use of Artificial Intelligence at Alloprof](#)

[LEARN Quebec AI resources](#)

ISTE AI

UNESCO AI

Videos

Win@social AI

Journal articles

[Viberg, O., Cukurova, M., Feldman-Maggor, Y. *et al.* What Explains Teachers' Trust in AI in Education Across Six Countries?. *Int J Artif Intell Educ* \(2024\).](#)

<https://doi.org/10.1007/s40593-024-00433-x>

[Yang, Y., Chen, L., He, W. *et al.* Artificial Intelligence for Enhancing Special Education for K-12: A Decade of Trends, Themes, and Global Insights \(2013–2023\). *Int J Artif Intell Educ* \(2024\).](#)

<https://doi.org/10.1007/s40593-024-00422-0>

[Yue, M., Jong, M.SY. & Ng, D.T.K. Understanding K–12 teachers' technological pedagogical content knowledge readiness and attitudes toward artificial intelligence education. *Educ Inf Technol* \(2024\). https://doi.org/10.1007/s10639-024-12621-2](#)

[Li Li, Fengchao Yu, Enting Zhang. A systematic review of learning task design for K-12 AI education: Trends, challenges, and opportunities. *Computers and Education: Artificial Intelligence*, Volume 6, 2024, 100217, ISSN 2666-920X.](#)

<https://doi.org/10.1016/j.caeai.2024.100217>

[Seo, K., Yoo, M., Dodson, S., & Jin, S. H. \(2024\). Augmented teachers: K–12 teachers' needs for artificial intelligence's complementary role in personalized learning. *Journal of Research on Technology in Education*, 1–18.
<https://doi.org/10.1080/15391523.2024.2330525>](https://doi.org/10.1080/15391523.2024.2330525)

Technology and Artificial Intelligence Tool Selection and Use Criteria for LCC

Ethical Considerations

How should we ensure that the values, ethical considerations and protections are adhered to when selecting and using AI tools for use at LCC?

- Clear process: A transparent and well-defined process and criteria for evaluating and selecting AI tools for school use.
- Privacy and security: AI tools meet all the requirements for Safety and Security based on School Policies and values and rules of measure 25.
- Responsible AI integration: Integrate AI-related tools and topics into learning experiences to enhance students' understanding of AI technology, its capabilities, and its ethical implications.
- Critical thinking: Facilitate critical thinking and ethical discussions regarding AI in the classroom, encouraging students to explore the broader implications and ethical considerations associated with AI technologies.
- Transparent communication with parents and stakeholders: Keep all stakeholders informed about the use of AI in the classroom, its purpose, and how it may benefit the education of students, and encourage students to be involved in discussions about AI's role in their own learning.
- Ethical AI integration in the classroom: Encourage the selection of AI tools and topics that align with LCCs values, ensuring they uphold and promote pedagogical practices that prioritize the best interests of the students.
- Bias mitigation and inclusivity: Validate that the AI tools selected for use have been human reviewed for potential bias; research each tool's training data, tendency toward hallucination, jailbreak susceptibility, and design considerations intended to avoid discrimination, bias and promote inclusivity.
- Openness to feedback and adaptation: Provide opportunities and resources for open feedback from students, teachers, administration, staff, and outside stakeholders. Openness is vital for adapting AI implementation based on evolving ethical standards and educational needs, ensuring a dynamic and responsive integration of AI to LCC.
- Consent: Ensure that AI tools are used in a way that requires proper informed consent. For example, informed consent should be provided if an AI tool is being used to automatically make transcriptions.

- Humans centred experiences: Preserve the human-centric aspect of learning experiences through diligent oversight and by keeping student experience at the core of AI tool adoption.
- Cultural considerations: Recognize and address cultural diversity and sensitivities in the adoption of AI tools, ensuring that technology aligns with the cultural and values of the LCC community, ensuring an inclusive learning environment.
- Policy, procedure, and guideline alignment: Ensure that the process for selecting AI tools adheres to LCC policies regarding technology learning resources.
- Transparent data practice: Include transparency in how data is collected, used, stored, and protected by an AI tool.
- Safeguarding process: Develop a process to protect users in the event of unforeseen issues, including errors made by AI tools, inappropriate content in AI tool outputs, or malicious use of AI tools. This process should ensure swift and effective responses, minimize disruptions, and prioritize the well-being of all individuals involved.

Needs and Impact

What information is needed to select and effectively integrate new AI tools?

- Strategic tool selection: Choose AI tools and vet them with the steering committee to meet a specific administrative, or educational need, ensuring a targeted and impactful integration.
- Source analysis: Determine whether the tool is designed for K-12 education, what specific educational tasks it was designed to perform, and whether the goals and values of the company that created the tool align with desired education outcomes.
- Efficiency assessment: Assess how much time an AI tool can save in administrative tasks and whether the time saved justifies use. Determine if the workflow using an AI tool is better and more efficient for students, teachers and/or staff than a previous process.
- Cost-benefit analysis: Evaluate the cost of an AI tool in relation to the benefits it provides, looking at the potential impact on efficiency and effectiveness, compared to the current cost of the non-AI process, ensuring a cost effective investment.
- Adaptive implementation: Monitor the use of AI tools and promptly stop using them if they fail to meet the specific needs.
- User feedback mechanism: Implement a user feedback mechanism with all AI tools. Actively seek input from users, fostering a user-centric approach to improvement.

- Workload assessment: Evaluate potential impacts on teachers' and staff workloads before selecting a specific AI tool for implementation.

Accessibility and Usability

Are AI tools equitably accessible to all?

- Differences between students: Consider how various learning differences can influence a student's ability to gain meaningful access and benefit from AI tools. Factors can include diverse experiences, different abilities, physical and mental health challenges.
- Equality versus equity: Ensure that strategies are established to bridge any gaps in access between students.
- Usability: Ensure that AI tools are accessible and usable by all users. Consider factors such as auditory, visual, language, and learning differences.
- Readiness Awareness: Provide opportunities for students, teachers, staff, and the greater LCC community to discuss and explore individual readiness for AI integration in the classroom. Recognize that not all individuals are
- Supportive documentation and training: Ensure that clear and regularly updated documentation, tutorials, or professional development resources are available to support effective use of AI tools by all users.
- Intuitive interface design: Look for AI tools with intuitive interfaces to reduce learning curves and minimize barriers to use.
- AI classroom culture: Develop a plan for how digital literacy and AI use can be incorporated into the classroom culture. By incorporating AI in digital literacy into the classroom culture, all students can build the knowledge, confidence, ethics and familiarity they need to use AI tools appropriately and effectively.
- AI Literacy: Implement approaches to enhance AI literacy among all LCC Staff, ensuring they have the necessary knowledge and skills to effectively integrate AI tools and model appropriate use.
- Accessibility to learning: Provide learning opportunities for all stakeholders (not only for teachers). Support stakeholders understanding of AI by providing opportunities for all members of the LCC community to develop knowledge and skills about AI. Creating an environment where AI tools are seamlessly integrated and used to support diverse learning needs.

- AI technology support: Ensure the technology team has the knowledge, training and understanding to provide technical support and resources to teachers, students and staff in implementing, maintaining, and decommissioning AI tools in a safe and ethical manner.

Integration

Will the selected AI tools integrate with LCC's technological infrastructure now and in the future?

- Seamless integration: Choose tools that will seamlessly integrate with LCC's existing technology infrastructure, google workspace, and Apple digital tools.
- Device compatibility: Verify that an AI tool works well on all Apple devices and other devices used at LCC.
- Future planning: Use the concept of scalability within the integration process. Choose Select AI tools that not only meet current needs but also possess the ability to upgrade with school's growth, ensuring a future-proof and sustainable technology integration.
- Interoperability standards: Highlight the importance of adherence to interoperability (the ability of different systems, devices, applications, or products to connect and communicate in a coordinated way). Select tools that align with LCC standards, fostering compatibility with other educational technologies used at LCC, to promote a cohesive technology ecosystem within the school.

Data Security and Privacy

How will the selected AI tools access, store, use or possibly disclose student data and educator information?

- "Bill 25": Evaluate each AI tool to ensure that it is compliant with the Quebec Data privacy act.
- Robust data security protocols: Evaluate the selected AI tool follows robust data security protocols and adheres to Bill 25's privacy regulations to safeguard sensitive Staff, teacher, and student information.
- Educate all Stakeholders on responsible use: Ensure that students, teachers, staff and other LCC community members have the opportunity to receive comprehensive education on the use of AI tools, the potential consequences of its misuse, and the need to use the technology safely (ie Social network's AI activities).
- Audit and compliance monitoring: Introduce the concept of ongoing audit and compliance monitoring. Select AI tools that not only initially comply with data security and privacy standards

but also offer mechanisms for continuous monitoring and adaptation, ensuring sustained adherence to evolving regulations.

- Data ownership clarity: Ensure that LCC maintains control and ownership of the data generated or processed by AI tools.
- Security and data breaches: Develop clear and standardized procedures to be followed in the event of a data or security breach related to an AI tool, ensuring a swift and coordinated response to mitigate potential risks and safeguard sensitive information.

Pedagogy

How can AI tools improve, enhance, support or deepen student learning?

- Continuous learning: Continue to research and learn about the impacts and use of AI in the classroom.
- Human-centric learning: Maintain a focus on human interaction and human experiences in the classroom, especially with the integration of technology and AI tools.
- Permission documentation: Before integrating any technology tool or AI applications into the classroom, ensure that students and parents or guardians have signed the acceptable use policy and technology consent forms.
- Curriculum alignment: Align AI tools with LCC learning standards, ministry requirements, IB guidelines and expectations to enhance the student learning experience.
- Versatility: Ensure that a selected AI tool can be used across various subject areas, grade levels (Junior, middle and Senior School), and classroom settings to optimize its utility and make it worthwhile for an entire school community.
- Inclusivity of learning needs: Choose technology and AI tools that accommodate diverse learning styles and individual needs.
- Interactive and collaborative features: Prioritize tools that encourage student engagement through interactive and collaborative features, enhancing participation and creating dynamic learning opportunities.
- Collaborative learning analytics: Introduce the concept of collaborative learning analytics with technology and AI tools. Seek tools that leverage analytics to provide insights into student learning patterns, enabling teachers to use real-time data when assessing their instructional strategies.

- Feedback for student growth: Choose technology and AI tools that provide meaningful feedback to support development of student ATL skills and support their individual learning process.
- Evidence-based effectiveness: Seek technology and AI tools with a proven track record of effectiveness preferably supported by research or case studies demonstrating that they enhance student learning.
- Expectation communication: Ensure that teachers clearly communicate expectations to students regarding independent use of technology and AI tools, letting them know when and how they should be using AI in the classroom or on related work at home, and when they should not be using AI tools.
- Adaptive personalization: Consider an AI tool's capacity for adaptive personalization. Look for features that allow the tool to adapt and tailor its interactions to individual student progress, optimizing the learning experience for diverse needs.
- Support for teachers to integrate AI in the classroom: Provide professional development requirements and opportunities for teachers into the adoption and classroom use of AI tools. Ensuring that all teachers receive training to reduce fear and enable their ability to use AI tools in the classroom, enhancing their ability to leverage AI to improved teaching and learning.
- Continuous feedback: Encourage educators and students to provide feedback on the AI tool's effectiveness, usability, and impact on learning outcomes.
- Authentic classroom assessment practices: Emphasize that AI serves as a supportive tool rather than a replacement for classroom processes. When incorporating AI into any classroom assessment, prioritize teacher oversight and active involvement to ensure the authenticity of assessments, alignment with the IB, ministry and LCC learning standards, and human-centred insights into student learning experiences.
- Student choice: Recognize the importance of student choice, fostering an inclusive and respectful learning environment that values diverse perspectives. Avoid mandating the use of tools that may raise ethical concerns for students, their parents or guardians.

Inclusive Learning

How can AI tools be used to foster supportive learning environments for students with diverse learning needs?

- AI tools for inclusive learning: Consider how AI can enable innovative approaches to fostering inclusive learning and creating classroom environments that embrace and value diversity. Determine how AI tools might be able to address individual barriers to learning, such as sensory challenges, communication challenges, and social belonging and connection.

- Individualized goal alignment: Consider how an AI tool can be used to support a student in achieving the educational goals in their Individual Education Plan (IEP). This might involve using an AI tool to support personalized learning.
- Accessible features: Ensure that an AI tool is designed with accessibility features that address specific student needs, such as text-to-speech, speech-to-text, adjustable font sizes, visual enhancements, and alternative formats for content.
- Adaptive content consideration: AI tools can be used to adapt content and learning experiences to support individual learning styles, preferences, and needs.
- Assistive technology compatibility: Ensure that AI tools are compatible with assistive technology tools by conducting thorough testing on a student's devices.
- Bilingual (Multilingual): Look for AI tools that are accessible in both English and French. When possible, utilize tools and provide language options that cater to the linguistic diversity of the student population, recognizing the importance of multilingual support in the context of inclusion.

Current tools recommended for Use at LCC

1. MagicSchool.ai
2. Gemini
3. Canva
4. Brisk.AI
5. Adobe Express

AI Terms to Know (Glossary)

AI hallucination is a phenomenon in which a large language model (LLM)—often a generative AI chatbot or computer vision tool—perceives patterns or objects that are nonexistent or imperceptible to human observers, creating outputs that are nonsensical or altogether inaccurate. Often these hallucinations appear credible but are entirely fabricated.

An **AI model** is a neural network (defined below) trained on a specific set of data. Some models are trained on diverse data, while other models may focus solely on specific datasets like medical imaging data.

AI safety is a field of study focused on making sure AI systems operate safely. This includes preventing issues like providing instructions for creating dangerous viruses or avoiding scenarios in which AI systems take control of other systems.

A sub-area of AI safety, **AI alignment**, concentrates on ensuring that AI systems' values align with human values. This includes balancing viewpoints, avoiding racial bias, and considering ethical, moral, and legal aspects that may vary across different countries and/or regions.

Algorithms are step-by-step procedures or sets of rules designed to solve specific problems or complete tasks. Think of them as a kind of recipe for computers to follow when executing a task. In the context of AI, algorithms are crucial for enabling machines to make decisions and perform tasks systematically. They are the heart of AI, guiding how data is processed and transformed into useful information. For instance, search engine algorithms determine the order of search results based on relevance and popularity.

An **application programming interface (API)** is a mechanism that enables two software components to communicate with each other using a set of definitions and protocols. For example, the weather bureau's software system contains daily weather data. The weather app on your phone "talks" to this system via APIs and shows you daily weather updates on your phone.

Artificial general intelligence (AGI) is a theoretical pursuit in the field of AI research aimed at developing AI with a human level of cognition, including the ability to self-teach. There is debate about whether these types of models will ever be possible.

Artificial intelligence (AI) is a machine's ability to perform the cognitive functions we usually associate with human minds, such as perceiving, reasoning, learning, interacting with an environment, problem-solving, and even exercising creativity. AI technologies are commonly used today, including things like voice assistants on your phone, customer service chatbots, and recommendations on streaming services.

Artificial intelligence in education (AIED) involves the integration of artificial intelligence technologies or computer programs in educational settings to aid in learning, teaching, and systems processes. It encompasses diverse applications, such as student-focused AIED for learning experiences, teacher-focused AIED to support educators in planning and instruction, and institution- focused AIED to enhance overall educational systems and administrative functions.

Artificial super intelligence (ASI) refers to a hypothetical system with intellectual capabilities that surpass those of the most intelligent human across all areas of knowledge and cognitive tasks. This level of artificial intelligence would exhibit understanding, problem-solving, and learning that exceeds the highest human proficiency in every domain.

Automation involves using technology to carry out tasks with minimal human intervention. In AI, automation often refers to machines or systems performing tasks that would otherwise require human effort. An example of automation is in manufacturing, where robots are used to assemble products on assembly lines, reducing the need for human labour.

Bias happens when an algorithm's result is influenced in favour of or against a particular idea. It occurs as a result of incorrect assumptions in an algorithm, leading to systematic errors. For example, if an algorithm has information only on apples and no other fruits, it may assume that apples are the only type of fruit. Bias can cause AI tools to provide certain responses more frequently, even if those answers may be incorrect.

Big data refers to massive datasets that are too large to be processed using traditional computing methods. Through data mining, advanced AI software can analyze these large databases to identify patterns and draw conclusions. Access to big data enables AI solutions to become more intelligent and deliver more human-like interactions.

A **black box** describes an AI system whose internal workings are inaccessible. Humans cannot determine how a black box AI arrives at a specific decision—only inputs and outputs can be observed. Several common generative AI tools are examples of black box AI; it's impossible to predict which answer it will provide and why it selects a particular answer.

Chatbots are AI-powered computer programs designed to simulate human conversation. They can answer questions, provide information, and assist users in real time.

In the realm of generative AI systems, **context** refers to the limit on input and output size the system can handle. **Tokens**, roughly equivalent to four characters or three-quarters of a word, define this limit. For example, ChatGPT originally allowed 1,024 tokens, meaning it could process around 750 words before exhibiting unpredictable behaviour.

Computer vision is an AI field that enables computers to interpret and understand visual information from the world. This technology powers facial recognition systems and medical image analysis, and even helps self-driving cars navigate by identifying traffic signs and pedestrians.

Conversational AI is a type of technology, like a chatbot, that simulates human conversation, allowing users to interact with and talk to it.

Data mining involves analyzing large databases to generate new information. Through data mining, AI tools become more effective at solving a wide variety of problems.

A **decision tree** is a structure of responses that helps a chatbot provide specific answers to questions. By asking a series of questions, known as branches, chatbots use a decision tree to narrow down a user's goal and provide them with an appropriate response.

Deep learning is a subset of machine learning that uses neural networks with multiple layers to process and analyze data. It is often used in complex tasks like image and speech recognition. For example, deep-learning algorithms enable self-driving cars to recognize and respond to various objects on the road.

A **deepfake** is a photo, video, or audio recording in which someone's likeness has been altered by AI. Deepfakes are often used maliciously to defame or spread misinformation.

Educational ethics in the context of AI in education encompasses guiding principles for the responsible integration of artificial intelligence technologies within educational settings. It

emphasizes a human-centric approach, aiming to enhance the learning experience, while also respecting cultural diversity and considering and addressing the distinct needs of staff, teachers, and students.

Generative AI is a broad, deep-learning AI algorithm that can be used to create new content, including audio, code, images, text, simulations, and videos. Generative AI can be used to create text, graphics, and videos in a matter of seconds.

Human in the loop is a concept that ensures that all decisions made and actions taken by AI systems have human oversight.

Interactive voice response (IVR) allows telephone users to speak with a computer-operated system that recognizes what they're saying. When you call a business and encounter an automated reply with a pre-recorded menu of options, you're interacting with an IVR system.

Internet of Things (IoT) refers to the network of interconnected physical objects embedded with sensors, software, and other technologies that enable them to collect and exchange data. Examples of IoT devices are smartboards, smart watches, or wearable fitness trackers.

Jailbreaking refers to the process of removing restrictions or limitations imposed by a device or software, often to gain access to features or functionality that were previously unavailable.

A **knowledge base** is a set of data available for a program to draw on to perform a task or provide a response. The larger the knowledge base an AI application has access to, the broader the range of problems it can solve.

Large language models (LLM) are a deep-learning algorithms that can recognize, summarize, translate, predict, and generate text and other forms of language-based content by pulling from large dataset

Machine learning is an aspect of AI in which computers learn from data and improve their performance over time without being explicitly programmed. Imagine a recommendation system like music streaming services suggesting songs based on what you have listened to before—that is machine learning in action.

Natural language processing allows computers to understand and generate human language. Think of chatbots that can have conversations with us or translation apps that help us communicate with people who speak different languages—these are powered by natural language processing.

A **neural network** is a system of interconnected neurons that work together to process information. It's inspired by the structure of the human brain. In AI, these networks learn from data, adjusting their connections (weights and biases) to make accurate predictions or classifications.

Weights are numerical values assigned to the connections between neurons in a neural network. These values determine the strength of the connections. During the training process, the weights are adjusted to minimize errors and improve the model's accuracy in making predictions.

Biases are additional values in a neural network that allow it to account for situations where all inputs may be zero or have no impact. They help the model learn more flexible patterns and make predictions that are not solely dependent on the input data. Like weights, biases are adjusted during training to optimize the model's performance.

Neurons are the basic units in a neural network. They function like tiny decision makers, taking in information, processing it, and producing an output.

Non-generative (or traditional/discriminative) AI focuses on performing a specific task intelligently. It refers to systems designed to respond to a particular set of inputs. Imagine you're playing computer chess. The computer knows all the rules; it can predict your moves and make its own moves based on a pre-defined strategy. It's not inventing new ways to play chess but selecting from strategies it was programmed with.

Parameters are like the building blocks of an AI model. They determine how big and sophisticated the model is by representing the weights and biases linked to the neurons in its neural network. If a model has more parameters, it becomes more intricate and capable, but it often needs more training data to function effectively. (Weights, biases, neurons, and neural networks are defined above.)

Predictive analytics refers to the use of AI to collect and use data to predict future trends and events. An example of predictive analytics is when a streaming service recommends additional shows and movies based on a person's viewing history.

Robotics involves the design and construction of machines that can perform tasks autonomously or semi-autonomously. AI is often integrated into robotics to enable machines to learn from their environment and make intelligent decisions.

User interface is the point of human-computer interaction and communication in a device. This can include display screens, keyboards, a mouse, and the appearance of a desktop. It is also how a user interacts with an application or a website.

Virtual reality (VR) immerses users in a computer-generated environment, while **augmented reality (AR)** overlays digital elements on the real world. AI can enhance VR and AR experiences by creating more realistic simulations or by providing contextual information. In education, VR can take students on virtual field trips, while AR can bring interactive content into textbooks.

Important note: The terms defined in this document are constantly evolving. The list of terms is not exhaustive; it is intended to serve as a starting point. You may encounter additional terminology and concepts that require further research and learning.

Termes à connaître en matière d'IA (fr)

Glossaire

L'hallucination de l'IA est un phénomène dans lequel un grand modèle de langage (LLM) - souvent un chatbot génératif d'IA ou un outil de vision par ordinateur - perçoit des modèles ou des objets qui sont inexistantes ou imperceptibles pour les observateurs humains, créant des résultats qui sont absurdes ou tout à fait inexacts. Souvent, ces hallucinations semblent crédibles mais sont entièrement fabriquées.

Un **modèle d'IA** est un réseau neuronal (défini ci-dessous) formé sur un ensemble spécifique de données. Certains modèles sont formés sur des données diverses, tandis que d'autres peuvent se concentrer uniquement sur des ensembles de données spécifiques, comme les données d'imagerie médicale.

La sécurité de l'IA est un domaine d'étude qui vise à garantir que les systèmes d'IA fonctionnent en toute sécurité. Il s'agit notamment de prévenir les problèmes tels que la fourniture d'instructions pour la création de virus dangereux ou d'éviter les scénarios dans lesquels les systèmes d'IA prennent le contrôle d'autres systèmes.

Un sous-domaine de la sécurité de l'IA, **l'alignement de l'IA**, se concentre sur la garantie que les valeurs des systèmes d'IA s'alignent sur les valeurs humaines. Il s'agit notamment d'équilibrer les points de vue, d'éviter les préjugés raciaux et de prendre en compte les aspects éthiques, moraux et juridiques qui peuvent varier d'un pays et/ou d'une région à l'autre.

Les algorithmes sont des procédures étape par étape ou des ensembles de règles conçus pour résoudre des problèmes spécifiques ou accomplir des tâches. Il s'agit d'une sorte de recette que les ordinateurs doivent suivre pour exécuter une tâche. Dans le contexte de l'IA, les algorithmes sont essentiels pour permettre aux machines de prendre des décisions et d'effectuer des tâches de manière systématique. Ils sont au cœur de l'IA, guidant la manière dont les données sont traitées et transformées en informations utiles. Par exemple, les algorithmes des moteurs de recherche déterminent l'ordre des résultats de recherche en fonction de leur pertinence et de leur popularité.

Une interface de programmation d'application (API) est un mécanisme qui permet à deux composants logiciels de communiquer entre eux à l'aide d'un ensemble de définitions et de protocoles. Par exemple, le système logiciel du bureau météorologique contient des données météorologiques quotidiennes. L'application météo de votre téléphone « parle » à ce système via des API et vous montre les mises à jour météorologiques quotidiennes sur votre téléphone.

L'intelligence artificielle générale (AGI) est une quête théorique dans le domaine de la recherche sur l'IA visant à développer une IA dotée d'un niveau de cognition humain, y compris la capacité d'auto-apprentissage. La question de savoir si ces types de modèles seront un jour possibles fait l'objet d'un débat.

L'intelligence artificielle (IA) est la capacité d'une machine à exécuter les fonctions cognitives que nous associons généralement à l'esprit humain, telles que la perception, le raisonnement, l'apprentissage, l'interaction avec un environnement, la résolution de problèmes et même l'exercice de la créativité. Les technologies de l'IA sont couramment utilisées aujourd'hui, notamment les assistants vocaux sur votre téléphone, les chatbots du service client et les recommandations sur les services de streaming.

L'intelligence artificielle dans l'éducation (AIED) implique l'intégration de technologies d'intelligence artificielle ou de programmes informatiques dans des environnements éducatifs pour faciliter l'apprentissage, l'enseignement et les processus systémiques. Elle englobe diverses applications, telles que l'IAED axée sur l'étudiant pour les expériences d'apprentissage, l'IAED axée sur l'enseignant pour

aider les éducateurs dans la planification et l'enseignement, et l'AIED axée sur l'institution pour améliorer les systèmes éducatifs globaux et les fonctions administratives.

La super intelligence artificielle (ASI) désigne un système hypothétique dont les capacités intellectuelles dépassent celles de l'homme le plus intelligent dans tous les domaines de la connaissance et des tâches cognitives. Ce niveau d'intelligence artificielle ferait preuve d'une compréhension, d'une résolution de problèmes et d'un apprentissage dépassant les compétences humaines les plus élevées dans tous les domaines.

L'automatisation consiste à utiliser la technologie pour effectuer des tâches avec une intervention humaine minimale. Dans le domaine de l'IA, l'automatisation fait souvent référence à des machines ou à des systèmes effectuant des tâches qui nécessiteraient autrement un effort humain. Un exemple d'automatisation est celui de la fabrication, où des robots sont utilisés pour assembler des produits sur des chaînes de montage, réduisant ainsi le besoin de main-d'œuvre humaine.

Il y a **biais** lorsque le résultat d'un algorithme est influencé en faveur ou en défaveur d'une idée particulière. Il résulte d'hypothèses incorrectes dans un algorithme, ce qui conduit à des erreurs systématiques. Par exemple, si un algorithme ne dispose que d'informations sur les pommes et aucun autre fruit, il peut supposer que les pommes sont le seul type de fruit. Les biais peuvent amener les outils d'IA à fournir certaines réponses plus fréquemment, même si ces réponses sont incorrectes.

Le terme « **big data** » fait référence à des ensembles de données trop volumineux pour être traités à l'aide de méthodes informatiques traditionnelles. Grâce à l'exploration de données, les logiciels d'IA avancés peuvent analyser ces grandes bases de données afin d'identifier des modèles et de tirer des conclusions. L'accès aux big data permet aux solutions d'IA de devenir plus intelligentes et d'offrir des interactions plus proches de l'humain.

Une **boîte noire** décrit un système d'IA dont le fonctionnement interne est inaccessible. Les humains ne peuvent pas déterminer comment un système d'IA de type boîte noire parvient à une décision spécifique - seules les entrées et les sorties peuvent être observées. Plusieurs outils d'IA générative courants sont des exemples d'IA boîte noire ; il est impossible de prédire la réponse qu'ils fourniront et la raison pour laquelle ils choisissent une réponse particulière.

Les chatbots sont des programmes informatiques alimentés par l'IA et conçus pour simuler une conversation humaine. Ils peuvent répondre à des questions, fournir des informations et aider les utilisateurs en temps réel.

Dans le domaine des systèmes d'IA générative, le contexte fait référence à la limite de la taille d'entrée et de sortie que le système peut gérer. **Les jetons**, qui correspondent à peu près à quatre caractères ou aux trois quarts d'un mot, définissent cette limite. Par exemple, ChatGPT autorisait à l'origine 1 024 jetons, ce qui signifie qu'il pouvait traiter environ 750 mots avant de présenter un comportement imprévisible.

La vision par ordinateur est un domaine de l'intelligence artificielle qui permet aux ordinateurs d'interpréter et de comprendre les informations visuelles du monde. Cette technologie alimente les systèmes de reconnaissance faciale et l'analyse d'images médicales, et aide même les voitures autonomes à naviguer en identifiant les panneaux de signalisation et les piétons.

L'IA conversationnelle est un type de technologie, comme un chatbot, qui simule une conversation humaine, permettant aux utilisateurs d'interagir avec elle et de lui parler.

L'exploration de données consiste à analyser de grandes bases de données pour générer de nouvelles informations. Grâce à l'exploration de données, les outils d'IA deviennent plus efficaces pour résoudre une grande variété de problèmes.

Un arbre de décision est une structure de réponses qui aide un chatbot à fournir des réponses spécifiques à des questions. En posant une série de questions, appelées branches, les chatbots utilisent un arbre de décision pour affiner l'objectif de l'utilisateur et lui fournir une réponse appropriée.

L'apprentissage en profondeur est un sous-ensemble de l'apprentissage automatique qui utilise des réseaux neuronaux à couches multiples pour traiter et analyser les données. Il est souvent utilisé dans des tâches complexes telles que la reconnaissance d'images et de la parole. Par exemple, les algorithmes d'apprentissage en profondeur permettent aux voitures autonomes de reconnaître les différents objets sur la route et d'y réagir.

Un deepfake est une photo, une vidéo ou un enregistrement audio dans lequel l'image d'une personne a été modifiée par l'intelligence artificielle. Les deepfakes sont souvent utilisés à des fins malveillantes pour diffamer ou diffuser des informations erronées.

L'éthique éducative dans le contexte de l'IA dans l'éducation englobe des principes directeurs pour l'intégration responsable des technologies d'intelligence artificielle dans les environnements éducatifs. Elle met l'accent sur une approche centrée sur l'humain, visant à améliorer l'expérience d'apprentissage, tout en respectant la diversité culturelle et en prenant en compte et en répondant aux besoins distincts du personnel, des enseignants et des étudiants.

L'IA générative est un algorithme d'apprentissage profond de l'IA qui peut être utilisé pour créer de nouveaux contenus, y compris de l'audio, du code, des images, du texte, des simulations et des vidéos. L'IA générative peut être utilisée pour créer du texte, des graphiques et des vidéos en quelques secondes.

L'humain dans la boucle est un concept qui garantit que toutes les décisions prises et les actions entreprises par les systèmes d'IA sont supervisées par un humain.

La réponse vocale interactive (RVI) permet aux utilisateurs du téléphone de parler à un système informatique qui reconnaît ce qu'ils disent. Lorsque vous appelez une entreprise et que vous obtenez une réponse automatisée avec un menu d'options préenregistré, vous interagissez avec un système RVI.

L'internet des objets (IdO) désigne le réseau d'objets physiques interconnectés dotés de capteurs, de logiciels et d'autres technologies qui leur permettent de collecter et d'échanger des données. Les tableaux intelligents, les montres intelligentes ou les appareils de suivi de la condition physique sont des exemples d'appareils IdO.

Le jailbreaking désigne le processus consistant à supprimer les restrictions ou les limitations imposées par un appareil ou un logiciel, souvent pour accéder à des caractéristiques ou à des fonctionnalités qui n'étaient pas disponibles auparavant.

Une **base de connaissances** est un ensemble de données dans lequel un programme peut puiser pour effectuer une tâche ou fournir une réponse. Plus la base de connaissances à laquelle une application d'IA a accès est importante, plus l'éventail des problèmes qu'elle peut résoudre est large.

Les grands modèles linguistiques (LLM) sont des algorithmes d'apprentissage profond qui peuvent reconnaître, résumer, traduire, prédire et générer du texte et d'autres formes de contenu linguistique en puisant dans de vastes ensembles de données.

L'apprentissage automatique est un aspect de l'IA dans lequel les ordinateurs apprennent à partir de données et améliorent leurs performances au fil du temps sans être explicitement programmés. Imaginez un système de recommandation tel que les services de streaming musical qui suggèrent des chansons en fonction de ce que vous avez écouté auparavant : c'est l'apprentissage automatique en action.

Le traitement du **langage naturel** permet aux ordinateurs de comprendre et de générer du langage humain. Pensez aux chatbots qui peuvent avoir des conversations avec nous ou aux applications de traduction qui nous aident à communiquer avec des personnes qui parlent des langues différentes : ils sont alimentés par le traitement du langage naturel.

Un **réseau neuronal** est un système de neurones interconnectés qui travaillent ensemble pour traiter les informations. Il s'inspire de la structure du cerveau humain. En IA, ces réseaux apprennent à partir des données, en ajustant leurs connexions (poids et biais) pour faire des prédictions ou des classifications précises.

Les poids sont des valeurs numériques attribuées aux connexions entre les neurones d'un réseau neuronal. Ces valeurs déterminent la force des connexions. Au cours du processus de formation, les poids sont ajustés afin de minimiser les erreurs et d'améliorer la précision des prédictions du modèle.

Les biais sont des valeurs supplémentaires dans un réseau neuronal qui lui permettent de tenir compte des situations dans lesquelles toutes les entrées peuvent être nulles ou n'avoir aucun impact. Ils aident le modèle à apprendre des modèles plus souples et à faire des prédictions qui ne dépendent pas uniquement des données d'entrée. Comme les poids, les biais sont ajustés au cours de la formation afin d'optimiser les performances du modèle.

Les neurones sont les unités de base d'un réseau neuronal. Ils fonctionnent comme de minuscules décideurs, absorbant des informations, les traitant et produisant un résultat.

L'IA non générative (ou traditionnelle/discriminative) se concentre sur l'exécution intelligente d'une tâche spécifique. Elle se réfère à des systèmes conçus pour répondre à un ensemble particulier d'entrées. Imaginez que vous jouez aux échecs sur ordinateur. L'ordinateur connaît toutes les règles ; il peut prédire vos mouvements et effectuer ses propres mouvements sur la base d'une stratégie prédéfinie. Il n'invente pas de nouvelles façons de jouer aux échecs, mais sélectionne des stratégies qui lui ont été programmées.

Les paramètres sont comme les éléments constitutifs d'un modèle d'IA. Ils déterminent la taille et la sophistication du modèle en représentant les poids et les biais liés aux neurones de son réseau neuronal. Si un modèle a plus de paramètres, il devient plus complexe et plus performant, mais il a souvent besoin de plus de données d'entraînement pour fonctionner efficacement. (Les poids, les biais, les neurones et les réseaux neuronaux sont définis ci-dessus).

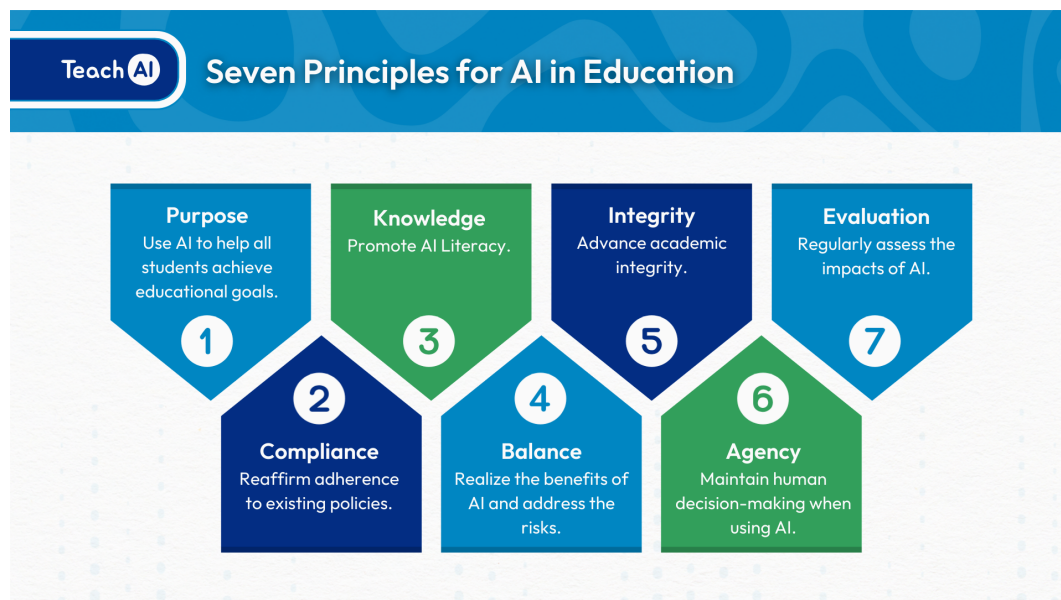
L'analyse prédictive fait référence à l'utilisation de l'IA pour collecter et utiliser des données afin de prédire des tendances et des événements futurs. Un exemple d'analyse prédictive est celui d'un service de streaming qui recommande des émissions et des films supplémentaires en fonction de l'historique de visionnage d'une personne.

La robotique concerne la conception et la construction de machines capables d'effectuer des tâches de manière autonome ou semi-autonome. L'IA est souvent intégrée à la robotique pour permettre aux machines d'apprendre de leur environnement et de prendre des décisions intelligentes.

L'interface utilisateur est le point d'interaction et de communication entre l'homme et l'ordinateur dans un dispositif. Il peut s'agir d'écrans d'affichage, de claviers, d'une souris et de l'apparence d'un bureau. C'est aussi la manière dont un utilisateur interagit avec une application ou un site web.

La réalité virtuelle (RV) plonge les utilisateurs dans un environnement généré par ordinateur, tandis que la réalité augmentée (RA) superpose des éléments numériques au monde réel. L'IA peut améliorer les expériences de RV et de RA en créant des simulations plus réalistes ou en fournissant des informations contextuelles. Dans le domaine de l'éducation, la RV peut emmener les étudiants dans des excursions virtuelles, tandis que la RA peut apporter un contenu interactif dans les manuels scolaires.

Visual Frameworks for AI integration



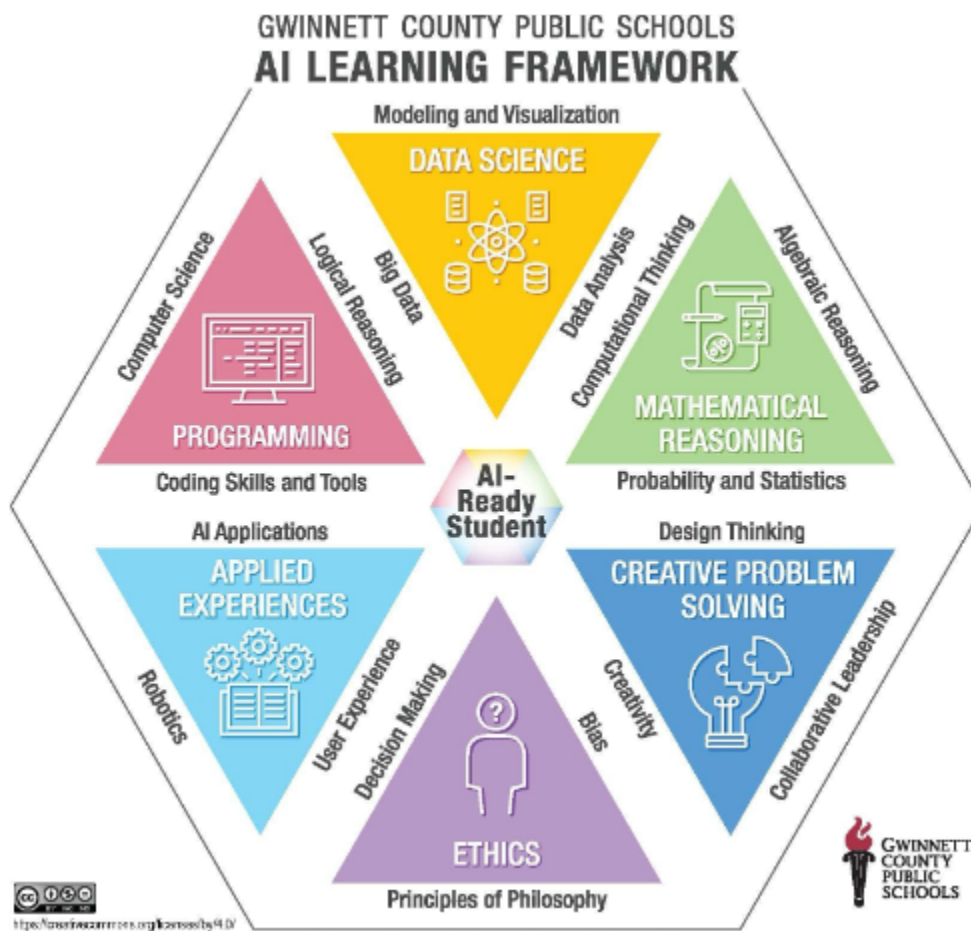
Teach AI.com

6 Guiding Principles of PowerSchool's AI Use

- 1 Human-centered
- 2 Built with fairness and bias elimination
- 3 Stringent data governance, privacy, and security
- 4 Transparency and user control
- 5 Digital equity and accessibility
- 6 Ethical use



Power School



Special Consideration: Academic Integrity

While it is necessary to address issues of Academic Integrity in the use of AI, particularly plagiarism, we can also use AI to advance the fundamental values of academic integrity - honesty, trust, fairness, respect, and responsibility.

- Teachers and students can use AI tools to quickly cross-reference information and claims, though they must still be critical of the output.
- Advanced AI tools can increase fairness by identifying and minimizing biases in grading and assessments.
- AI can adapt materials for students with different learning needs, showing respect for individual differences.
- To address the Issues of Academic Integrity and AI in Education
- Teachers should allow the limited use of generative AI on specific assignments or parts of assignments. What not allowing AI use teachers must articulate why they do not allow its use in other assignments to help students better understand appropriate use.
- Teachers should not use tools and technology that identifies itself as a generative AI detector. These tools that supposedly identify the use of generative AI, claiming to detect cheating and plagiarism, have questionable accuracy.
- If a teacher or student uses an AI system, its use must be disclosed and explained. As part of the disclosure, students may choose to cite their use of an AI system using one of the following resources:
 - [MLA Style - Generative AI](#)
 - [APA Style - ChatGPT](#)
 - [Chicago Style - Generative AI](#)

AI Literacy

Ethical and Societal Implications

Ethical Awareness

AI Essentials

AI Foundations

Data Literacy

Future-Ready Thinking

Computational Thinking

Critical Thinking

Wayfinding

Sensemaking

Metacognition

AI-Leveraged Innovation

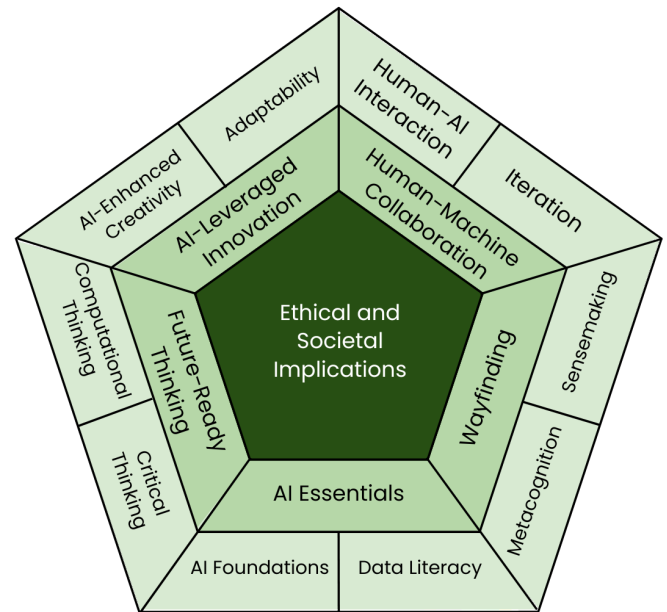
AI-Enhanced Creativity

Adaptability

Human-Machine Collaboration

Human-AI Interaction

Iteration



***From Evergreen Education**

Classroom activities

Kindergarten - Grade 3

Can AI match your idea?

Animate my story.

Grade 4 - 6

What's wrong with this picture

What's the main idea?

Grade 7 - 8

How is AI used in the real world?

What would Hemingway say?

Grade 9 - 11

Who writes better AI or me?

How does AI make mistakes

Analyse an AI generated article for accuracy, structure and function.