Empowering Learners for the Age of AI

An AI Literacy Framework for Primary and Secondary Education

European Commission | OECD

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REVIEW DRAFT (May 2025)

Welcome!

Empowering Learners for the Age of AI: An AI Literacy Framework for Primary and Secondary Education (AILit Framework) is a joint initiative of the European Commission and the Organization for Economic Cooperation and Development (OECD). Code.org and leading international experts support its development. The AILit Framework contributes to the PISA 2029 Media & Artificial Intelligence Literacy assessment.

This draft framework also aligns with the broader European Commission efforts to promote quality education and skills provision for the digital transformation in the context of the Digital Education Action Plan 2021-2027. In particular, the framework responds to the 2023 Council Recommendations on digital education and skills. It complements the 2022 Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators and DigComp 2.2: The Digital Competence Framework for Citizens. More broadly, the EU AI Act, the first comprehensive legislation on AI in the world, promotes a human-centered and risk-based approach to the adoption of AI systems. In particular, Article 4 of the Act requires both providers and deployers of AI systems to ensure that their staff, and anyone using the systems on their behalf, have an adequate level of AI literacy.

This draft is intended to elicit feedback from educators and stakeholders. We hope it sparks a dialogue about what AI literacy means and how teaching and learning must evolve in an age of AI. We also look forward to engaging with stakeholders over the next several months and invite you to provide feedback at in-person and virtual events hosted by the European Commission, OECD, Code.org, and our network of international experts and organizations. Your input plays a crucial role in shaping the future of AI literacy.

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An international team of experts informed the development of this draft. Their insight ensures that the framework aligns with research and practice at the intersections of education, technology, and learning design.

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Development Team

Empowering Learners for the Age of AI: An AI Literacy Framework for Primary and Secondary Education is a joint initiative of the European Commission and the Organization for Economic Cooperation and Development (OECD). Code.org and leading international experts support its development. The European Commission co-funded the framework and assisted with expertise built on previous work at the EU level. The development team was responsible for overall project management, hosting focus groups, conducting research, drafting versions of the framework for review, processing feedback, and designing the draft document and website.

Acknowledgements

The TeachAI community provided valuable insights to inform the development of this draft framework.

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Introduction

Why AI Literacy?

As artificial intelligence (AI) increasingly influences how we access information, communicate, and make decisions, AI literacy becomes essential for navigating daily life, creating with purpose, and preparing for the future of learning and work. AI literacy equips learners and educators to understand both the risks and opportunities that AI presents, and to make meaningful and ethical decisions about its use. It helps learners critically evaluate AI's impact on their lives, education, and communities while preparing them to shape the future. However, to fully realize the potential of AI literacy to shape learning, key barriers to implementation must be addressed, including:

- A lack of a shared understanding of what AI literacy is and how to teach it.
- Uncertainty about how AI fits into various subject areas.

This publication serves as a starting point for teachers, education leaders, education policymakers, and learning designers to understand AI literacy and decide how it fits their needs. Establishing a common language about AI literacy is instrumental for consistency across diverse educational settings.

Definition of AI Literacy

AI literacy represents the technical knowledge, durable skills, and future-ready attitudes required to thrive in a world influenced by AI. It enables learners to engage, create with, manage, and design AI, while critically evaluating its benefits, risks, and ethical implications.

This draft definition builds on existing definitions from the EU AI Act, OECD, UNESCO, and other organizations.

What is AI?

Artificial Intelligence (AI) is a "machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments" (OECD, 2024). As defined in the EU AI Act, and in alignment with the OECD definition, "AI system means a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments" (EU AI Act, 2024).

The term "AI" in this publication refers to a broad range of AI systems. When warranted, specific terms such as "generative AI" or "machine learning" are used.

Young People are Experimenting with AI and Need Guidance

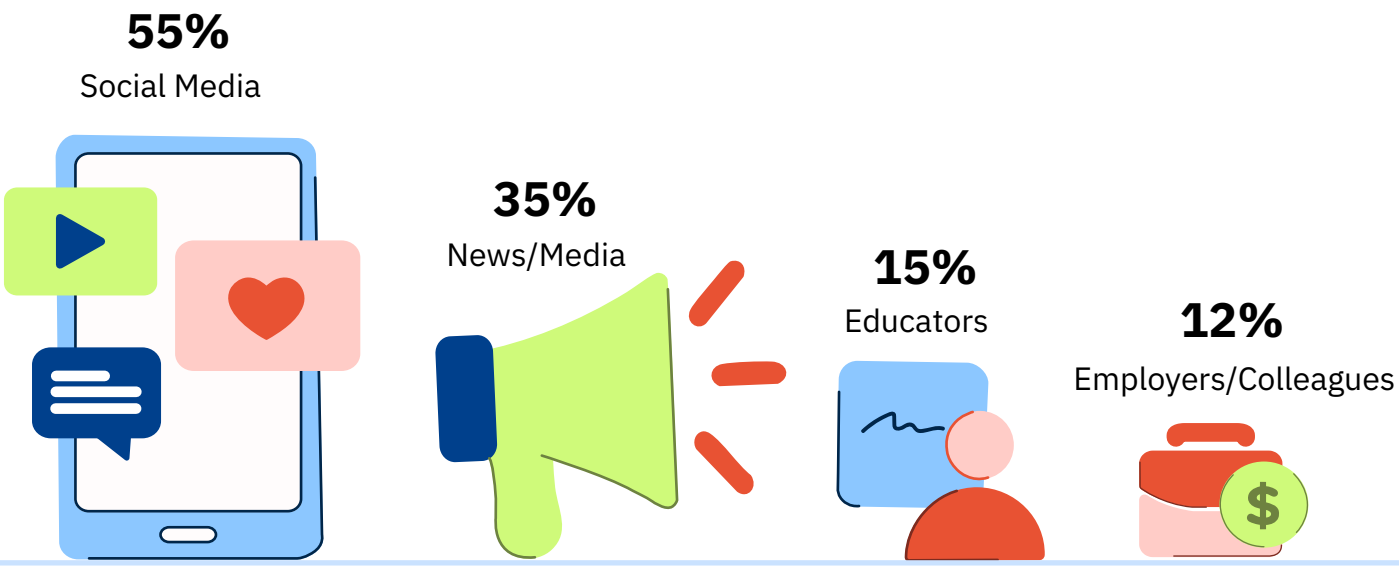
As young people begin using AI in more aspects of their lives, they need guidance to understand what it means, how it works, and how to use it responsibly. The majority of young people are already using AI, experimenting and practicing with AI in both structured and unstructured ways in their personal and professional lives (Merriman & Sanz Sáiz, 2024). But as they use AI, learners may encounter disinformation, misinformation, and bias, raising concerns over privacy and fairness. AI may also create skills and achievement gaps among peers and highlight a disconnect between what learners see as essential to their future and what schools currently provide (Vodafone Foundation, 2024).

AI literacy provides a clear understanding of how AI technologies work and what their responsible use entails, so that learners can make safe and informed decisions. Learners can also benefit from the opportunities AI brings to their lives, work, and studies. AI literacy must be grounded in trusted information, a focus on ethics, and a commitment to social good.

49% of 17- to 27-year-olds struggle with critically evaluating and identifying AI's shortfalls, such as whether AI systems can invent facts.

Source: Merriman & Sanz Sáiz, 2024

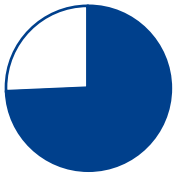
How Does Gen Z Learn About AI?



Source: How can we upskill Gen Z as fast as we train AI? (Merriman & Sanz Sáiz, 2024)
(5,218 respondents distributed globally)

The AI Skills Gap

A 2024 study of 12- to 17-year-olds across Europe reported that:



74%

Believe that AI will play a significant role in their professional lives.

46%

Think their schools adequately prepare them for AI.

44%

Perceive their teachers as well prepared to work with AI applications.

49%

Worry that AI could widen gaps in academic success among peers.

Source: AI in European Schools: A European report comparing seven countries (Vodafone Foundation, 2024) (7,000 students across Germany, Greece, Portugal, Romania, Spain, Türkiye, and the UK)

AI Literacy is an Educational Priority

This framework centers on the role of AI literacy in teaching and learning, as AI's emerging presence in education affects how learners research, write, and collaborate, as well as how educators plan lessons and provide feedback. A foundational understanding of AI supports educators in making their own decisions about when and how to use AI based on the students and content they know best. Without this support, learners may uncritically accept AI-generated content, adopt habits that compromise academic integrity, or neglect skills like critical thinking and empathetic judgment. They may also overlook the opportunities AI offers to enhance their own learning experiences and introduce new skills. Making AI literacy an educational priority ensures that students know how to evaluate, question, and apply AI responsibly in their academic lives, and thrive in contexts beyond the classroom.

Integrating AI literacy is a shared responsibility across the education ecosystem, rather than the duty of any individual educator. Educators are encouraged to embed AI literacy when and where it aligns with their subject and context. The competences outlined in this framework are intended to be developed across a learner's primary and secondary education experience, in formal and informal learning environments, including schools, homes, and community settings.

Intended Audience for the Framework

This framework is designed for teachers, education leaders, education policymakers, and learning designers. It outlines competences and learning scenarios to inform learning materials, standards, school-wide initiatives, and responsible AI policies for primary and secondary education settings.

Teacher

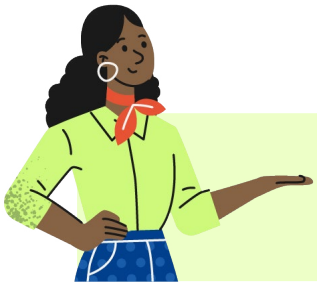
> I need to know how AI can help my students learn and how I can integrate AI literacy into my curriculum during my full school day.

Education Leader

> I want to develop AI literacy initiatives for my school or professional organization and am looking for easy-to-follow guidance.

Education Policymaker

> I help shape AI literacy initiatives to ensure learners and educators are ready for the age of AI, and I want practical, research-backed advice to guide policies.



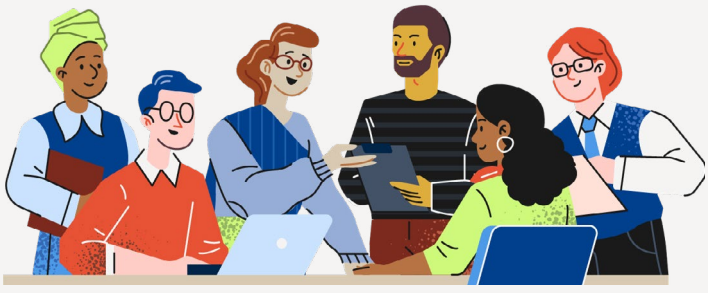
Learning Designer

> I design instructional content and train teachers, and I want to include AI literacy as a key feature in my resources.

Provide Feedback on this Draft

Over the next few months, stakeholders from around the world are encouraged to share their feedback and insights. The final version of the framework will be released in 2026, accompanied by limited exemplars of AI literacy in curriculum, assessment, and professional learning.

We invite you to contribute to these efforts via the following link: teachai.org/ailiteracy/review



02

Foundations of the AILit Framework

Building on Existing Frameworks

The AILit Framework builds on ideas and practices from previous digital competence and AI literacy frameworks. Collectively, these frameworks ensured that the AILit Framework is internationally informed, relevant to educators, and grounded in the ethical, technical, and social dimensions of AI literacy.

The European Commission's Digital Competence Framework for Citizens (DigComp) competence categorization and emphasis on learner agency in its knowledge, skills, and attitudes influenced the content of the AILit Framework, while its realistic employment and learning use cases informed the framework's structure.

UNESCO's AI Competencies for Students and AI Competencies for Teachers influenced AILit Framework's focus on global relevance and implementation. UNESCO's work also prompted consideration for clear distinctions between learner-specific AI literacy outcomes and ways that educators can support these experiences in the classroom.

The Digital Promise AI Literacy Framework's interconnected Modes of Engagement, with cross-cutting AI Literacy Practices and enumerated Types of Use, provided a foundation for how the AILit Framework defines competences and frames learners' specific interactions with emerging technologies.

The AI4K12 5 Big Ideas in AI informed the technical aspects of the framework, including the nature of AI and role of data in the AI training process.

The AILit Framework builds on these efforts, emphasizing a durable foundation, interdisciplinary integration, practical application, and insights from a global community of experts. It outlines essential knowledge, skills, attitudes, and competences that will remain relevant as AI continues to evolve, with a focus on concepts that transcend specific tools or trends. The framework also supports interdisciplinary connections across subjects and empowers learners to engage with AI critically, ethically, and creatively.

The AILit Framework's primary and secondary education scenarios illustrate how AI literacy can be practically implemented in classrooms, and in some cases without the need for AI technologies. Developed in collaboration with international experts in education and learning sciences, the framework is designed to be foundational, adaptable, and globally applicable. Its implementation is supported by a diverse network of partners in curriculum development, research, assessment, and policy. The final version of the framework will be accompanied by classroom-ready exemplars and inform the development of the innovative domain of the PISA 2029 assessment.

Research Process and Themes

This draft is informed by research that included the review of existing frameworks on digital competence, media literacy, and AI literacy, and the analysis of curricula in computer science, data science, social sciences, and career education. It also incorporates multiple research methods such as literature reviews, expert interviews, and focus groups with potential users. Three key themes emerged from this process: technical knowledge, the human skills needed to collaborate effectively with AI, and ethical considerations.

Theme 1: How AI and Machine Learning Work

Understanding AI helps learners dispel misconceptions about the technology and enables a more informed evaluation of its implications. AI isn't magic or all-knowing: It processes data using statistical inferences and logic to produce outputs (Allen & Kendeou, 2023; Touretzky & Gardner-McCune, 2022). It has been trained by data that comes from publicly available information, user-generated content, databases, and real-time interactions collected through sensors and digital systems (AI4K12, 2022; aiEDU, 2024). AI models "learn" not through authentic understanding, but by adjusting statistical weights based on these datasets (Touretzky & Gardner-McCune, 2022). This produces sophisticated outputs but makes AI vulnerable to replicating the harmful and statistical biases embedded in its training data or introduced during development (AI4K12, 2022; aiEDU, 2024; Sparks et al., 2024). The AILit Framework emphasizes that learners must develop a strong understanding of AI's technical foundations, including its reliance on data, probabilities, and inputs. By demystifying these technical underpinnings, learners develop a comprehensive understanding of both AI's capabilities and limitations. Ultimately, they draw connections between how AI works and the ways it might impact themselves or others.

Theme 2: Human Skills to Emphasize for Successful Collaboration with AI Tools

The AILit Framework emphasizes several skills and attitudes that support learners' successful collaboration with AI. Traditional learning competences such as metacognition and critical thinking remain highly relevant to interactions with AI. Communication, questioning, and perspective-taking skills assume new importance in interactions with AI and in broader discussions about its implementation (Thoman & Jollis, 2008; Kafai et al., 2019; aiEDU, 2024). Traditional computational thinking skills, such as abstraction, decomposition, and problem formulation, assume additional relevance beyond the computer science classroom, as students encounter technological challenges in their diverse everyday contexts (Allen & Kendeou, 2023; Dasgupta & Hill, 2021). This framework deliberately centers human capabilities within AI-specific competences, ensuring learners can effectively leverage AI tools while maintaining qualities that technology cannot replicate.

Theme 3: AI's Effects on Individuals, Society, and the Environment

Learners must think critically about how AI already affects them and how it will continue to shape their futures. Rather than treating ethics as a supplement to technical concepts, this framework emphasizes that values, context, and accountability are inseparable from learning with and about AI. This approach aligns with international research and existing policy recommendations and initiatives (European Commission 2020, 2022; Miao et al., 2024; Vuorikari et al., 2022). Learners must understand that AI exists within social and political systems and that algorithmic outputs can reinforce existing patterns of unfairness if not critically examined. This also includes considerations about the ethics of how training data was collected and classified (Buolamwini & Gebru, 2018; Noble, 2018; TeachAI, 2024). Throughout their interactions with AI, learners must reflect on its real-world implications: who can benefit or be harmed by AI systems; what perspectives are represented and excluded in both training data and AI-generated outputs; and, how AI systems influence personal autonomy, ownership, and access to information (White & Scott, 2024; Miao et al., 2024). The AILit framework reinforces ethical consideration through practical competences, mirroring calls to treat ethical evaluation as a core skill in one's digital life. Cultivating AI literacy helps learners navigate a world where technological decisions are deeply intertwined with power, equity, and accountability. It equips them to ask not only what AI can do, but also what it should do and whom it serves.

Additionally, the AILit Framework compels learners to weigh the environmental cost of using AI systems with AI's relevance to specific tasks. At the time of publication, AI systems require significant amounts of energy, materials, and water, while contributing to global carbon emissions (Zewe, 2025; Bashir et. al., 2024). Ongoing efforts to improve sustainability in computing focus on AI's potential to increase energy efficiency or address unique climate-related problems that other technologies cannot (Bashir et. al., 2024). While AI's long-term effects on natural resources have yet to be fully realized, this represents an opportunity for learners to think more broadly about the relationship between the digital and physical world.

The AILit Framework Development Principles

Interdisciplinary

Integrate AI literacy into a wide range of subjects and educational settings.

Foundational

Define a core set of competences needed to demonstrate proficiency in AI literacy.

Illustrative

Include scenarios and exemplars that bring AI literacy to life.

Global

Incorporate insights from educators, researchers, and AI experts worldwide.

Practical

Make AI literacy manageable and attainable in various classroom contexts.

Durable

Identify knowledge and skills that will remain relevant as AI evolves.

The Role of Teachers and Educators

Teachers and educators play a key role in developing learners' AI literacy by integrating AI concepts into concrete classroom practice. They help learners connect abstract ideas to specific subject matter, guide inquiry into how AI systems function, and create a supportive space for discussions about fairness, bias, and real-world impacts (Allen & Kendeou, 2023; Chiu et. al., 2021). The primary and secondary education scenarios that accompany each competence in the framework highlight ways that students can develop and demonstrate AI literacy in educational settings. However, it is up to educators to decide when to introduce AI tools, how to scaffold understanding, and what it means to assess student learning in a rapidly-changing technological landscape (Allen & Kendeou, 2023; Chiu & Chai, 2020; European Commission, 2022; Miao & Cukurova, 2024). Even more, they promote the responsible use of AI based on available guidelines from their education system, and use their expertise to make age-appropriate decisions about its use (Miao & Cukurova, 2024). These decisions stem from an educator's unique relationship with their students and their content expertise.

Educators need targeted support to build their own AI competences and to develop effective pedagogies for guiding students through this learning journey. The AILit Framework offers different ways for educators to introduce AI literacy to their learning environments. Its knowledge statements emphasize a clear understanding of AI's technical foundations, equipping educators to approach AI literacy with confidence and accuracy. The accompanying skills and attitudes, grounded in learning theory, metacognition, and recognition of uniquely human capacities, ensure that AI literacy can be meaningfully integrated into existing classroom practices. Learner-centered competences and education scenarios help teachers identify and prioritize relevant AI literacy outcomes that can take place in their classrooms. To further support implementation, the final version of the AILit Framework will also include a limited number of teaching and learning exemplars. Ultimately, educators' long-term success in teaching AI literacy depends on integrating new learning goals with existing priorities and having access to high-quality initial teacher training and continuous professional development that builds AI-informed pedagogy.

Learner Personas: What Does AI Literacy Look Like in Action?

These personas illustrate what it looks like when learners put AI literacy skills into action. They serve as starting points for imagining an AI-literate world, reflecting the many ways these skills take shape.

Sofia

10 years

AI in Action!

With her mother's guidance, Sofia uses generative AI to explore different plots and experiment with dialogue for stories she writes. She describes her own ideas and possible themes to the AI tool, then reflects on whether each suggestion feels right for her characters before making changes to her work. Sofia appreciates that AI introduces new ideas to consider, but trusts her own creative vision.

Jun

13 years

AI in Action!

Jun helps organize a school volunteering event by collecting availability, scheduling the day, and managing last-minute changes. He uses AI to draft schedules, then assigns volunteers himself based on classmates' personalities and strengths. AI automates logistics for Jun, helping him focus on building effective, collaborative teams for the event.

Omar

15 Years

AI in Action!

Omar set up an AI voice assistant for his parents to help them with everyday tasks, such as creating the family's schedule or grocery list. When he started seeing specific product recommendations on his social media feeds, Omar changed his account settings to prevent the system from using his family's information for targeted advertising.

Anika

18 Years

AI in Action!

As part of her studies, Anika is experimenting with designing a wellness app that uses an AI model to suggest mental health resources. While testing the app, she notices that it sometimes recommends options that reinforce gender stereotypes. Before going further with the app she makes a point to refine the model's responses to prompts and reviews the content it recommends.

03

Framework Structure

The Four Domains of AI Literacy

The four domains of the AILit Framework represent different ways in which learners interact with AI. Learners can build proficiency across multiple domains without developing full proficiency in any single one. The four domains encompass 22 competences.

Engaging with AI involves using AI as a tool to access new content, information, or recommendations. These situations require learners to first recognize AI's presence, then evaluate the accuracy and relevance of AI outputs. Learners must develop a fundamental understanding of AI's technical foundations in order to critically analyze its capabilities and limitations.

Creating with AI consists of collaborating with an AI system in a creative or problem-solving process. It involves guiding and refining AI output through prompts and feedback, while ensuring the content remains fair and appropriate. It also involves ethical considerations related to content ownership, attribution, and the responsible use of existing materials.

Managing AI requires intentionally choosing how AI can support and enhance human work. This includes assigning structured tasks to AI, such as organizing information, so humans can focus on areas requiring creativity, empathy, and judgment. AI systems can simulate a variety of roles, acting as an analyst, debate partner, or career guide. Learners who manage AI's actions learn to delegate tasks thoughtfully, guide AI outputs with clear instructions, and assess whether AI's role aligns with their goals and values. This domain helps learners build agency, ensuring that AI works for them and that its use remains ethical and human-centered.

Designing AI empowers learners to understand how AI works and connect it to its social and ethical impacts by shaping how AI systems function. Through hands-on exploration in an education context, students examine how data, design choices, and model behavior influence the fairness, usefulness, and impact of AI systems. The goal is not to develop commercial products or put them into service, but to build the confidence and capacity to shape AI for human good by understanding the principles underpinning the design of AI from an early age.

Knowledge, Skills, and Attitudes

While competences may evolve over time or in different contexts, the framework's knowledge, skills, and attitudes provide a durable foundation for AI literacy. They prepare learners to responsibly interact with existing technologies and navigate new ones as they arise. Each competence includes primary and secondary education learning scenarios that apply to various subject areas and educational contexts. These scenarios provide practical starting points for educators to include AI literacy in their own classrooms, with and without direct access to AI. Find the full text of the knowledge, skills, attitudes, competences, and learning scenarios in Sections 4 and 5.

Knowledge

The knowledge statements in the framework focus on conceptual knowledge, outlining the technical and societal understandings that learners need to apply and engage with AI systems. These concepts include how AI processes data, how AI differs from human thinking, and how bias can emerge in AI systems.

Skills

The skills demonstrate how fundamental abilities, such as critical thinking, creativity, and computational thinking, apply in an AI context. They guide learners in using AI effectively and ethically, ensuring that learners actively shape how AI fits into their lives.

Attitudes

The attitudes reflect mindsets and dispositions that prepare learners to engage with AI, not only with technical skills, but also with an awareness of AI's impact on themselves and others. These include a sense of curiosity and adaptability in using AI systems, as well as a readiness to question outputs and a commitment to using AI responsibly.

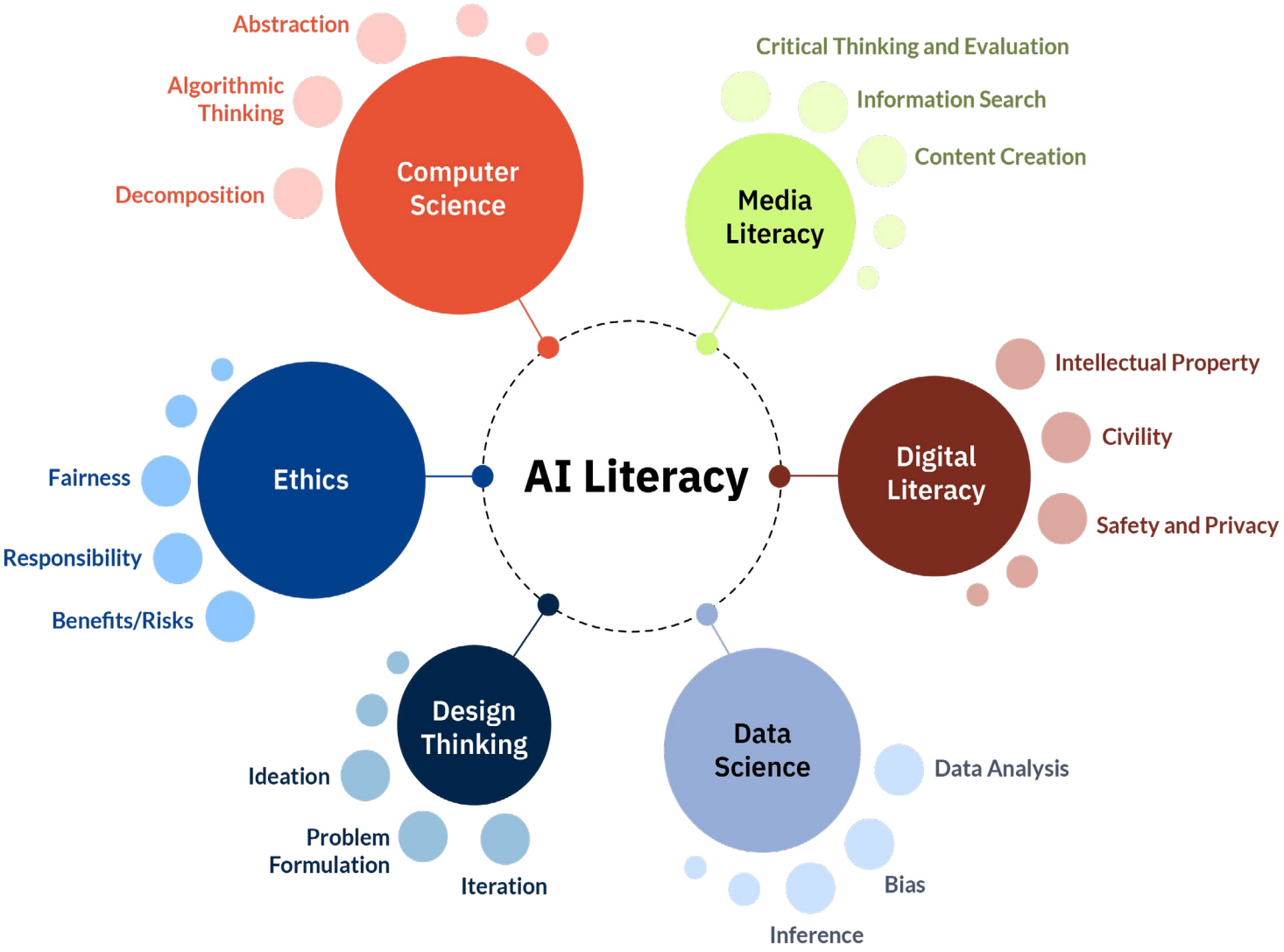
Ethics in the Framework

Ethical principles appear throughout the framework's knowledge, skills, and attitudes, and are reflected in multiple competences. For example, the competence "Evaluate whether AI outputs should be accepted, revised, or rejected." requires learners to recognize that AI's ability to generate human-like content introduces risks, such as misinformation, disinformation, or manipulation. Learners must apply critical thinking to detect misleading outputs and adopt a responsible attitude to ensure AI is used ethically.

> ***"The EU AI Act reminds us that AI literacy is key for educators as they empower students to navigate the benefits and risks of AI. By prioritizing AI literacy, we are empowering this generation of students with critical thinking and informed decision-making skills that will tap into AI's potential and help them thrive in a rapidly changing world.***
>
> - Romina Cachia, Team Leader and Scientific Researcher, Joint Research Centre - European Commission

Relationship to Other Topics and Disciplines

The AILit Framework reflects relevant knowledge, skills, and attitudes found across multiple topics and disciplines. AI literacy draws from areas such as ethics, computer science, media and digital literacy, data science, and design thinking—connecting technical understanding with critical evaluation, responsible use, and creative problem-solving. These interdisciplinary links reinforce the idea that AI literacy is a foundation for navigating and shaping the role of AI across contexts.



04

Knowledge, Skills, and Attitudes

Knowledge

The Nature of AI

AI Reflects Human Choices and Perspectives

AI Reshapes Work and Human Roles

AI's Capabilities and Limitations

AI's Role in Society

Skills

Critical Thinking: Evaluate AI-generated content.

Creativity: Collaborate with AI to create and refine ideas.

Computational Thinking: Decompose problems and provide instructions.

Self and Social Awareness: Recognize AI's influence.

Collaboration: Work effectively with AI and humans.

Communication: Explain how AI is used.

Problem Solving: Determine when and how to use AI.

Attitudes

Responsible

Curious

Innovative

Adaptable

Empathetic

Knowledge

The knowledge statements in the framework include facts, concepts, ideas, and processes reflecting disciplinary, interdisciplinary, epistemic, and procedural knowledge. They outline the technical and societal understandings that learners need to apply and engage with AI systems.

The Nature of AI

K1.1: AI systems use algorithms that combine step-by-step procedures with statistical inferences (e.g., weights and biases) to process data, detect patterns, and generate probable outputs.
K1.2: Machines "learn" by inferring how to generate outputs such as predictions, content, and recommendations that influence physical or virtual environments, in response to information from the input they receive. They do so with varying levels of autonomy and adaptiveness after deployment.
K1.3: Generative AI uses probabilities to generate human-like outputs across various modalities (e.g., text, audio, visuals) but lacks authentic understanding and intent.
K1.4: AI systems operate differently depending on their purpose, whether to create, predict, recommend, or respond.

Explanation: AI systems—including, but not limited to, classifiers, recommenders, predictive models, generative AI, and autonomous agents – operate by processing vast datasets to identify statistical patterns. As a broad class of technology, AI simulates intelligent behavior. Whether generating content, sorting information, making predictions, or executing sequences of actions, these systems aim to produce outputs that are statistically most likely to meet a given objective. While these systems can produce highly sophisticated and human-like outputs, they do so without comprehension, awareness, or intent. Understanding this distinction dispels the misconception that AI is all-knowing or consistently correct, and helps learners assess its reliability, limitations, and potential impact.

AI Reflects Human Choices and Perspectives

K2.1: Building and maintaining AI systems relies on humans to design algorithms, collect and label data, and moderate harmful content. These systems reflect human choices, assumptions, and labor practices, shaped by unequal global conditions.
K2.2: AI is trained on vast datasets sourced from publicly available information, user-generated content, curated databases, and real-world data collected through sensors, interactions, and digital systems.
K2.3: AI systems gather new data from interactions with users; decisions, processes, and outputs may be directly influenced by inputs in real time.
K2.4: AI systems are trained to identify patterns among data elements that humans have selected, categorized, and prioritized.
K2.5: Bias inherently exists in AI systems, which can also reflect societal biases embedded in its training data or algorithm design. Humans can perpetuate or mitigate harmful biases in AI systems during the design, development, or testing process.

Explanation: AI is not neutral; it is shaped by the decisions of those who build it. Humans select training data, which may have been collected unethically or feature inaccurate and incomplete representations of individuals and perspectives. They also impart judgment during the classification of that training data, which informs the algorithms that produce AI systems' outputs. While statistical and societal biases may exist undetected in training data or be reinforced in other aspects of the training

process, AI's prevalence in decision-making and everyday life can replicate those biases in ways that harmfully affect different groups of people. This makes ethics, algorithmic fairness, representation, explainability, and accountability essential to AI literacy.

AI Reshapes Work and Human Roles

K3.1: AI systems automate structured tasks, augment decision-making, and transform industries, requiring humans to adapt, reskill, and upskill.
K3.2: AI integration requires individuals to determine which tasks are best suited for machines and which require human intervention or expertise.
K3.3: While AI can support analysis and prediction, humans must be responsible for decisions that reflect human judgment and ethical considerations.

Explanation: The impact of AI across industries emphasizes the importance of adaptability and lifelong learning. While AI systems can increase efficiency for many types of tasks, these tools might not always be the best choice; humans must hone their knowledge of AI's capabilities and their domain expertise to manage AI systems effectively. Success in an AI-integrated workforce entails developing fluency in a range of technologies, staying current with new tools and techniques, and leveraging human judgment in decision-making starting from early ages, in and outside of formal education. This combination ensures that AI complements human skills and augments human capacities, rather than replaces them.

AI's Capabilities and Limitations

K4.1: AI excels at pattern recognition and automation but lacks emotions, ethical reasoning, context, and originality.
K4.2: AI requires vast amounts of computing power and data, which consumes energy, thus demanding limited natural resources and increasing carbon emissions. AI's long-term sustainability impact, both positive and negative, largely depends on how it is implemented and utilized.
K4.3: The capability of generative AI, particularly large language models (LLMs), to generate human-like content can make it difficult to distinguish fact from fabrication, increasing the potential to generate misinformation, deepfakes, or manipulative materials.

Explanation: AI lacks a true grasp of real-world context, human values and behaviors, and nuance—even when systems modify their own outputs to respond to a user's complex emotional states. While AI systems can analyze enormous amounts of data, they are prone to bias, confabulation, and misuse and rely on vast but finite natural resources. A human must make judgments about specific contexts that AI systems cannot, including whether the benefits of an AI tool is worth the environmental or societal cost. AI literacy requires critical thinking about when, where, and how AI should be applied to ensure it serves human needs equitably.

AI's Role in Society

K5.1: AI plays an increasingly prevalent role in decision-making that impacts humans, from hiring practices to healthcare to criminal justice.
K5.2: AI systems must be understood, audited, and regulated to ensure that their use leads to more benefits than harm for individuals and society.
K5.3: Generative AI and Large Language Models create content based on existing materials in training data, which includes copyright-protected work, thereby raising questions about authenticity,

authorship, and ownership.
K5.4: Ethical AI design encompasses fairness, transparency, explainability, accountability, respect for privacy, and legal compliance.

Explanation: AI systems do not exist in isolation; their use reflects, reinforces, and reshapes societal values and decisions. Without careful oversight, AI-driven decision-making can amplify bias and cause widespread harm. AI systems introduce implications for how learners should think about truth, authorship, and ownership in digital spaces. Individual and system-level guidance and regulations can help address areas where AI intersects with fundamental rights, such as surveillance and data privacy. Familiarity with ethical AI design principles helps learners to critically assess how AI systems are built and deployed. Without the understanding, learners risk accepting AI outputs at face value rather than asking whom they benefit or harm. To ensure AI serves society responsibly, we must continuously question and evaluate its effects and guide its use to mitigate its risks.

Skills

These skills represent fundamental human abilities applied to an AI context. They guide learners in using AI ethically and ensure that learners actively shape how AI fits into their lives.

Critical Thinking: Evaluate AI-generated content for accuracy, fairness, and bias to make informed and ethical decisions.

How can I check the accuracy of AI-generated outputs and reduce the risk of harmful bias? How do I know if AI is relevant or appropriate?

Practicing critical thinking in an AI context involves verifying whether the information provided by an AI system is accurate, relevant, and fair. Because AI systems can generate convincing but incorrect or biased content, learners must actively work to identify potential misinformation and weigh outputs with other sources of information. These actions result in a greater awareness of AI's impact on the broader information system. This process uncovers hidden biases or gaps and ensures AI outputs support ethical decision-making. By developing these skills, learners exercise media literacy, digital literacy, and digital citizenship, while becoming more discerning users of AI.

Creativity: Collaborate with AI to create and refine original ideas while considering issues of ownership, attribution, and responsible use.

How can I use AI responsibly to bring my creative visions to life?

Exercising creativity when using AI involves interacting with AI systems to brainstorm, generate, and refine original ideas. As learners use AI systems to explore possibilities beyond what they had originally envisioned, they must consider AI's impacts on originality, ownership, attribution, and copyright. By engaging creatively and responsibly with AI systems, learners stay accountable for the ideas they shape and share.

Computational Thinking: Decompose problems and provide instructions in ways that allow AI systems to effectively contribute to solutions.

How do I frame my problem so that AI can help solve it?

Computational thinking skills help approach and frame problems in ways that leverage the capabilities of AI and account for its limitations. This involves decomposing, or breaking down complex problems into structured components, and communicating goals and constraints in a manner that AI systems can effectively process (e.g., prompt engineering). By providing use cases, counterexamples, and expected outcomes to AI systems, learners refine their own communication skills, engage with metacognitive strategies, and make progress toward their goals.

Self and Social Awareness: Recognize how AI influences personal choices, relationships, and communities, and reflect on its broader societal and environmental impact.

How does AI impact me and others?

Self and social awareness are vital when interacting with AI. This skill begins with recognizing AI's presence in daily life and understanding how it influences decisions in both the digital and physical worlds. This extends beyond mere identification and applies to thoughtful consideration of AI's broader effects on individuals, communities, and the environment. Learners might also engage metacognitively with AI's effects on their own behaviors, thoughts, and learning processes. By recognizing AI's influence, learners are better equipped to evaluate AI-generated content and monitor how these technologies influence their thoughts and behaviors over time.

Collaboration: Work effectively with AI and humans by communicating clearly, giving feedback, and navigating shared tasks.

How can I collaborate transparently and ethically with AI to accomplish a goal?

Collaboration with AI relies on positive and productive interactions between humans and AI systems. This requires the ability to both give feedback and ask for help in and outside of the digital world. As learners collaborate with AI systems, they demonstrate agency alongside metacognition. By collaborating tactfully, assessing strengths in context, and honing relationship-building skills, learners develop the ability to navigate new and complex situations.

Communication: Explain how AI is used in a way that promotes transparency, avoids anthropomorphism, and encourages responsible use.

How do I describe AI use for myself and others?

Communicating about AI involves explaining when and how AI systems are used, including how they may have shaped content or contributed to decisions that impact others. This skill emphasizes that AI-literate learners have a responsibility to accurately describe how AI works in ways that do not

mischaracterize or assign human traits to its capabilities. When learners choose their words to promote transparency and responsible use of AI systems, they uphold ethical practices and encourage informed conversation about AI's implications.

Problem Solving: Determine when and how to use AI for a task by assessing its capabilities, risks, and ethical implications.

How do I choose the right type of tool for the task at hand?

Using AI to address a problem begins with thoughtful reflection on the task at hand and includes thorough consideration of whether AI's capabilities meet the task's technical and ethical requirements. To do this, learners might test specific AI systems for reliability and potential to replicate harmful bias. Learners problem-solve with AI when they ask themselves how AI systems might add value, where human judgment should come into play, and when to avoid AI use altogether.

Attitudes

These attitudes reflect the mindsets and dispositions that prepare learners to engage with AI, not only with technical skills, but also with an awareness of AI's impact on themselves, others, and society.

Responsible

Learners think carefully about how they use AI and are accountable of their choices. They consider both the intended and the potential unintended effects of their actions, and are committed to preventing harm to others. They believe everyone has the right to understand how AI affects them and to make informed decisions about its use.

Curious

Learners are eager to explore what AI can do today and how it might evolve in the future. They want to understand how AI affects their personal lives and future careers. They consider learning to be an ongoing process and enjoy experimenting, believing that meaningful discoveries happen through exploration.

Innovative

Learners seek to use AI to address real-world challenges and embrace new opportunities. They experiment, try different approaches, and think creatively to solve a problem. They believe AI can be a powerful tool for creating positive change in their own lives and the lives of others.

Adaptable

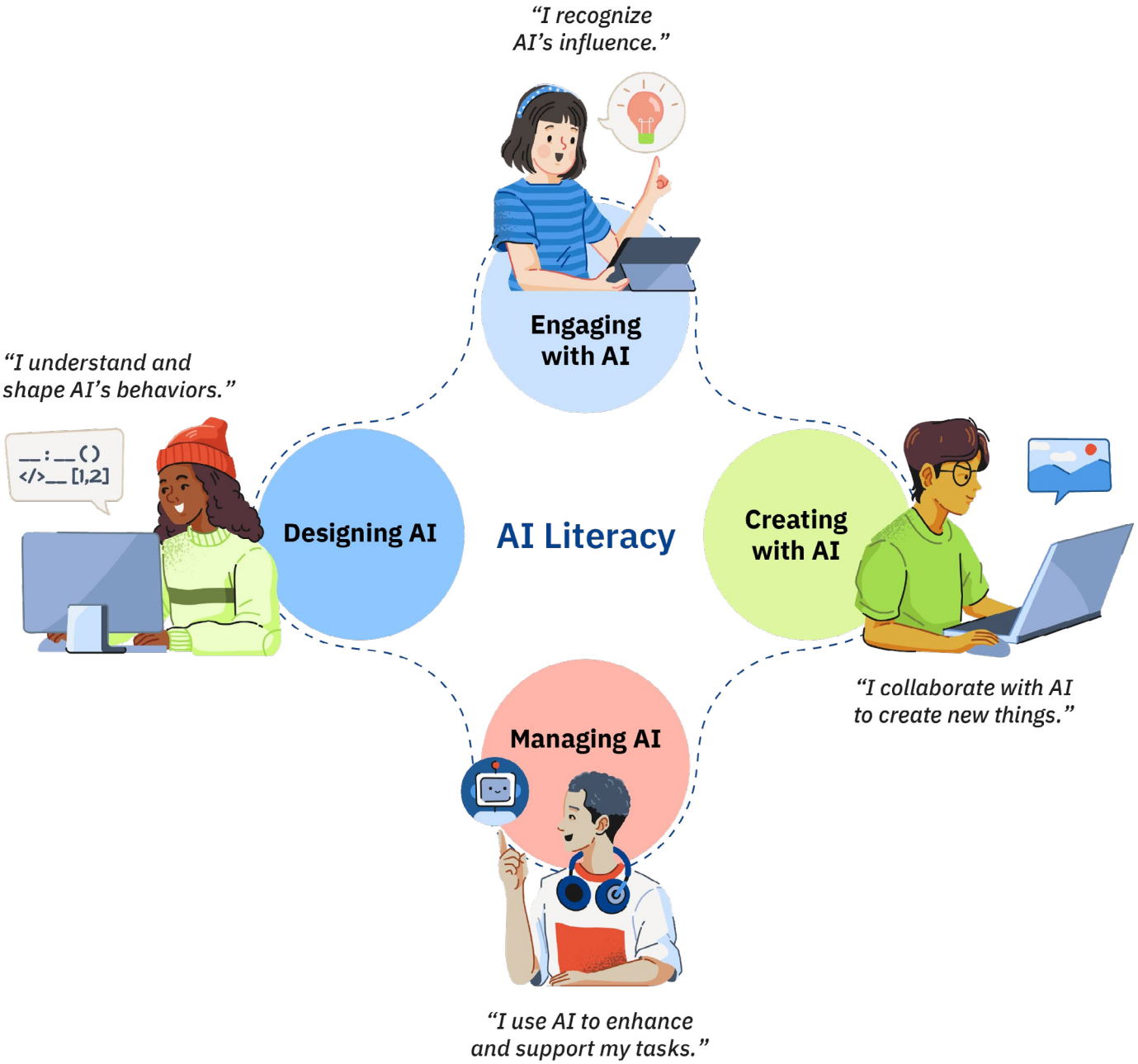
Learners show perseverance and flexibility when working with AI. They are open to diverse ideas, perspectives, and approaches. They understand that collaborating with AI is an iterative process shaped by feedback and revision.

Empathetic

Learners thoughtfully examine how AI impacts individuals, communities, and the environment. They weigh both the benefits and potential risks of using AI, understanding that its impact can vary for different groups of people.

05

Competences



The Anatomy of a Competence

Each competence is a learning expectation that reflects technical knowledge, durable skills, and future-ready attitudes. Although skills and attitudes have broad applicability, the framework highlights combinations that best support each competence. Each competence is accompanied by primary and secondary education scenarios that illustrate how learners can develop the respective competence in the classroom, under the guidance of a teacher.

Skills

Problem Solving: Determine when and how to use AI for a task by assessing its capabilities, risks, and ethical implications.
Computational Thinking: Decompose problems and provide instructions in ways that allow AI systems to effectively contribute to solutions.

Attitudes

Responsible; Innovative

"Decide whether to use AI systems based on the nature of the task."

Knowledge

K4.1: AI excels at pattern recognition and automation but lacks emotions, ethical reasoning, context, and originality.
K5.4: Ethical AI design encompasses fairness, transparency, explainability, accountability, respect for privacy, and legal compliance.

Primary Education Scenario

Consider everyday tasks (e.g., writing a birthday card) and assess when AI use is appropriate, considering the need for individuality, creativity, or human judgment.

Secondary Education Scenario

Determine whether specific AI systems should be avoided, or used to complete specific tasks, based on how well each option aligns with an assignment's learning objectives.

Engaging with AI

Engaging with AI in daily life involves using AI as a tool to access new content, information, or recommendations. These situations require learners to first recognize AI's presence, then evaluate the accuracy and relevance of AI outputs. Learners must develop a fundamental understanding of AI's technical foundations in order to critically analyze its capabilities and limitations.

“

Engaging with AI is more than just having digital skills—it demands critical thinking, media literacy, and the ability to challenge AI outputs, identify misinformation, and understand how data and ideas are used.

- Kari Kivinen, Education Outreach Expert, European Intellectual Property Observatory

Engaging with AI Competences

1 Recognize AI's role and influence in different contexts.

Knowledge: K1.4, K5.1 **Skills:** Self and Social Awareness **Attitudes:** Curious, Responsible

Learners identify the presence of AI in everyday tools and systems and consider its purpose in various situations, such as content recommendations or adaptive learning. They reflect on how AI influences their choices, learning, and perceptions.

Primary Education Scenario

List familiar digital interactions (e.g., using a web camera, video recommendations) and discuss if and how each uses AI.

Secondary Education Scenario

Explore how an online math platform uses real-time data to present content at different levels of difficulty.

2 Evaluate whether AI outputs should be accepted, revised, or rejected.

Knowledge: K4.1, K4.3 **Skills:** Critical Thinking **Attitudes:** Responsible

Learners critically assess the accuracy and fairness of AI-generated content, recognizing that AI can generate misinformation or biased outputs. They decide whether to trust, modify, or override AI outputs by considering their potential impact on themselves and others.

Primary Education Scenario

Compare an AI tool's step-by-step math solution to a learner's explanation to determine if the AI's process aligns with techniques that students have already learned.

Secondary Education Scenario

Prompt a language model with questions about historical events and evaluate the accuracy and bias of its responses by cross-referencing with reliable sources.

3 Examine how predictive AI systems provide recommendations that can inform and limit perspectives.

Knowledge: K1.1, K4.3 **Skills:** Self and Social Awareness **Attitudes:** Curious

Learners explore how AI uses data patterns to offer suggestions (e.g., what to watch, buy, or read) and consider how those recommendations may both support learning or decision-making and reinforce narrow viewpoints or biases.

Primary Education Scenario

Count by 2s, 5s, and 10s to introduce how humans recognize and predict sequences, then explore how AI generates recommendations based on patterns.

Secondary Education Scenario

Examine how social media algorithms can contribute to spreading disinformation or misinformation about a public health issue and compare the responsibilities of individuals and platforms in addressing the harm.

4 Explain how AI could be used to amplify societal biases.

Knowledge: K2.1, K2.5 **Skills:** Critical Thinking, Self and Social Awareness, Problem Solving **Attitudes:** Empathetic, Responsible

Learners investigate how AI systems, such as facial recognition or hiring algorithms, reflect human decisions and data, and identify ways that bias in data or design can lead to unfair outcomes for different groups of people.

Primary Education Scenario

Split several characters from different stories into categories, then discuss how using rules or data to group people can be useful or treat some people unfairly.

Secondary Education Scenario

Examine how an AI system was trained to recognize faces, evaluate potential sources of bias in the training data, and suggest steps developers could take to improve fairness.

5 Describe how AI systems consume energy and natural resources.

Knowledge: K4.2 **Skills:** Self and Social Awareness **Attitudes:** Responsible

Learners explore the environmental impact of AI, including its energy and data infrastructure, and consider how responsible design and use can support sustainability.

Primary Education Scenario

Create an infographic illustrating AI's environmental impacts, including the electricity it consumes, the devices it operates on, and the materials required to manufacture those devices.

Secondary Education Scenario

Compare AI's environmental costs with efforts to reduce them, then debate whether using AI in specific scenarios is environmentally responsible.

6 Analyze how well the use of an AI system aligns with ethical principles and human values.

Knowledge: K1.4, K3.3, K5.4 **Skills:** Self and Social Awareness, Critical Thinking, Problem Solving **Attitudes:** Responsible

Learners assess whether using AI in a given situation, such as surveillance cameras in public spaces or moderating online content, supports values such as fairness, transparency, and privacy. They reflect on whether its use is appropriate, beneficial, or potentially harmful.

Primary Education Scenario

Evaluate if AI is used kindly, fairly, and respectfully in multiple scenarios, such as editing or sharing someone's photo without permission.

Secondary Education Scenario

Use an AI writing assistant to revise a personal narrative, then reflect on whether its suggestions supported authentic voice or changed the story undesirably.

7 Connect AI's social and ethical impacts to its technical capabilities and limitations.

Knowledge: K2.1, K5.2 **Skills:** Self and Social Awareness, Problem Solving **Attitudes:** Curious, Empathetic, Responsible

Learners explore how AI's strengths and weaknesses affect how it's used in society. They connect the design and function of AI systems to real-world impact on people, communities, and systems.

Primary Education Scenario

Discuss why a smartphone voice assistant sometimes doesn't understand commands or questions, and when to turn to another source for information.

Secondary Education Scenario

Investigate how predictive AI calculates credit scores or loan eligibility. Then explore which data is used, what bias might appear, and how mathematical models can reinforce inequality.

Creating with AI

Creating with AI consists of collaborating with an AI system in a creative or problem-solving process. It involves guiding and refining AI output through prompts and feedback, while ensuring the content remains fair and appropriate. It also involves ethical considerations related to content ownership, attribution, and the responsible use of existing materials.

“

Where does creativity come from? We want to think it’s all in one person’s head. But even at professional design schools, they put people in groups in these big, colorful rooms with sticky notes because having those things helps you to be more creative. It helps you to get out more ideas. So, LLMs used well can be similar. If I have a thought partner that I can improvise with, that could actually be a great creativity amplifier.

- Victor R. Lee, Associate Professor of Learning Sciences and Technology Design, Stanford University

Creating with AI Competences

1 Use AI systems to explore new perspectives and approaches that build upon original ideas.

Knowledge: K4.1 **Skills:** Creativity **Attitudes:** Innovative, Adaptable

Learners experiment with AI to expand their thinking, generate new ideas, or consider alternative viewpoints. They stay accountable for the final content while letting AI support their creative process.

Primary Education Scenario

Evaluate AI-generated images to create story settings based on learner ideas (e.g., "a jungle in space"), then write new stories inspired by unexpected results.

Secondary Education Scenario

Use AI to develop counterarguments for a class debate to anticipate and address opposing viewpoints.

2 Visualize, prototype, and combine ideas using different types of AI systems.

Knowledge: K1.4 **Skills:** Collaboration, Creativity **Attitudes:** Curious, Adaptable

Learners try out AI tools that operate in different formats (text, images, music, etc.) to explore and refine new ideas. They combine outputs into a meaningful product or solution.

Primary Education Scenario

Use an AI music tool to create a short song to describe a season, then experiment with different moods, instruments, and lyrics, and combine learners' favorite parts into a final track.

Secondary Education Scenario

Use AI tools to explore different formats (e.g., text, graphics, music) for a public awareness campaign and combine elements from each with existing ideas to create a final product.

3 Collaborate with generative AI systems to elicit feedback, refine results, and reflect on thought processes.

Knowledge: K2.3 **Skills:** Computational Thinking, Creativity **Attitudes:** Innovative, Adaptable

Learners engage in an iterative process with AI by testing prompts and refining AI-generated outputs, and then reflect on how the interaction shaped their thinking and choices.

Primary Education Scenario

Use an AI writing tool to improve a class story, by choosing which suggestions support their creative vision, and discussing how their ideas changed through the process.

Secondary Education Scenario

Use an AI coding assistant to fix errors and modify code for a video game, then reflect on how the tool affected the debugging process.

4 Analyze how AI can safeguard or violate content authenticity and intellectual property.

Knowledge: K5.3 **Skills:** Problem Solving, Self and Social Awareness **Attitudes:** Empathetic, Responsible

Learners explore how AI-generated content may borrow from or replicate existing work, and consider when that use is fair, original, or in need of attribution. They reflect on the ethical implications of AI-assisted creation.

Primary Education Scenario

Compare original student work to AI-generated poems, then discuss what makes something "original" and how to give credit when AI tools help create content.

Secondary Education Scenario

Research how certain artists' styles appear in AI-generated art, then debate whether the use of the artists' content is fair or requires consent.

5 Explain how AI systems perform tasks using precise language that avoids anthropomorphism.

Knowledge: K1.3, K1.4 **Skills:** Communication **Attitudes:** Responsible

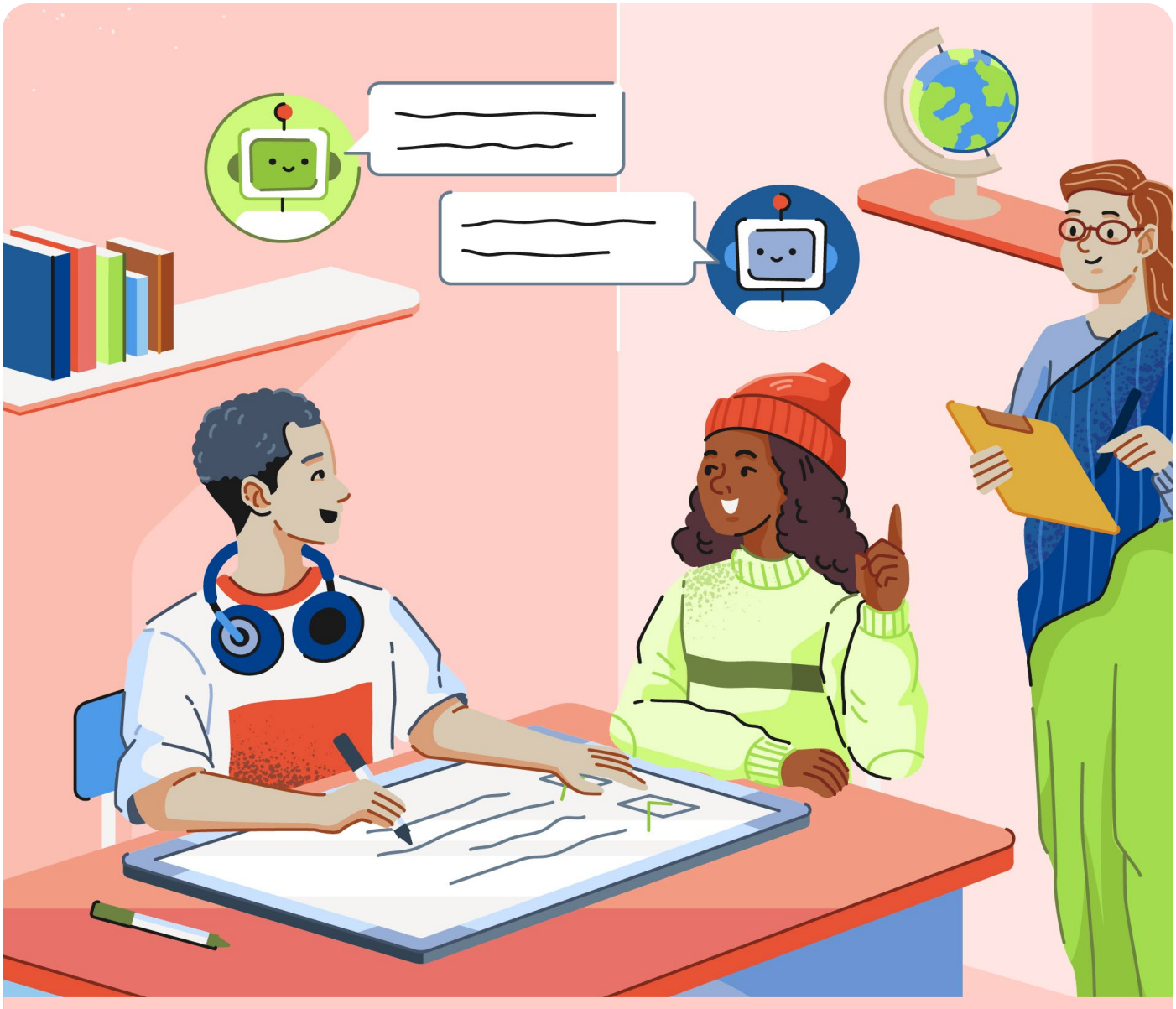
Learners describe how AI operates in realistic, accurate terms, avoiding language that suggests AI has human feelings or understanding. They understand that their language can either clarify or perpetuate misconceptions about AI.

Primary Education Scenario

Compare art created by a human with art generated by AI, and discuss how artists express themselves while generative AI uses patterns in existing data.

Secondary Education Scenario

Describe how a generative AI system can create a song based on prompts, learned patterns, and training data, without assigning it intent, emotion, or creativity.



Managing AI

Managing AI requires intentionally choosing how AI can support and enhance human work. This includes assigning structured tasks to AI, such as organizing information, so humans can focus on areas requiring creativity, empathy, and judgment. AI systems can simulate a variety of roles, acting as an analyst, debate partner, or career guide. Learners who manage AI's actions learn to delegate tasks thoughtfully, guide AI outputs with clear instructions, and assess whether AI's involvement aligns with their goals and values. This domain helps learners build agency, ensuring that AI works for them and that its use remains ethical and human-centered.

"

Effectively managing AI starts with students deciding if AI is truly needed. This requires setting clear learning goals, decomposing problems, and distributing work appropriately with AI tools being used to augment human capacity. Students must be able to communicate transparently about their use of AI and follow guidelines that ensure fairness while centering justice and human judgment.

- Pati Ruiz, Senior Director, EdTech and Emerging Technologies, Digital Promise

Managing AI Competences

1 Decide whether to use AI systems based on the nature of the task.

Knowledge: K4.1, 5.4 **Skills:** Problem Solving, Computational Thinking **Attitudes:** Responsible, Innovative

Learners assess whether AI is the right tool for a specific situation. They consider factors like the complexity of the task, the need for human judgment, and the ethical implications.

Primary Education Scenario

Consider everyday tasks (e.g., writing a birthday card) and assess when AI use is appropriate, considering the need for individuality, creativity, or human judgment.

Secondary Education Scenario

Determine whether specific AI systems should be avoided, or used to complete specific tasks, based on how well each option aligns with an assignment's learning objectives.

2 Decompose a problem based on the capabilities and limitations of both AI systems and humans.

Knowledge: K4.1 **Skills:** Collaboration, Computational Thinking, Problem Solving **Attitudes:** Innovative, Adaptable

Learners break down a complex task and decide which parts can be handled by AI and which require human involvement. They distribute tasks based on their nature and human and AI strengths.

Primary Education Scenario

Use AI to brainstorm science fair ideas and gather background information, while the class votes on the best project, designs and carries out the experiment, and interprets the results.

Secondary Education Scenario

Examine a historical question using AI to summarize primary sources and commentaries, while students assess context, detect bias, discuss resources and make new interpretations.

3 Direct generative AI systems by providing specific instructions, appropriate context, and evaluation criteria.

Knowledge: K1.3, K2.3 **Skills:** Collaboration, Computational Thinking **Attitudes:** Innovative, Adaptable

Learners practice prompt engineering by giving AI clear, structured inputs to guide outputs that meet expectations and goals.

Primary Education Scenario

Construct a prompt that another student could use to draw a poster, including the poster topic, what not to do, and what a quality result should look like.

Secondary Education Scenario

Experiment with instructing an AI chatbot to take on the role of a debate partner by engineering prompts that define its purpose, tone, and task. Then test and evaluate how effectively it supports learning goals.

4 Delegate tasks to AI systems to appropriately automate or augment human workflows.

Knowledge: K3.1 **Skills:** Collaboration, Problem Solving **Attitudes:** Innovative

Learners identify opportunities to offload repetitive or structured tasks to AI, allowing people to focus on creativity, ethics, or decision-making.

Primary Education Scenario

Plan a writing process where AI helps with spelling corrections and synonym suggestions, while learners focus on storytelling, character development, and creative plot twists.

Secondary Education Scenario

Use AI to generate variations of a concept based on a group's initial ideas, while team members evaluate the options, refine the final version, and present their rationale.

5 Develop and communicate guidelines for using AI systems that align with human values, promote fairness, and prioritize transparency.

Knowledge: K5.4 **Skills:** Communication, Critical Thinking, Self and Social Awareness **Attitudes:** Responsible, Empathetic

Learners create or reinforce responsible guidelines for AI use in academic contexts. They consider existing guidelines from local, national, or international organizations, such as the European Commission or the OECD.

Primary Education Scenario

Create a classroom poster outlining fair ways to use an AI tool, such as crediting sources and seeking a teacher's approval before using it for assignments.

Secondary Education Scenario

Lead a workshop for peers on common AI tools, sharing guidelines for AI use that promote honesty, respect for intellectual property, and critical thinking.

Designing AI

Designing AI empowers learners to understand AI's social and ethical impacts and how AI works by shaping how AI systems function. Through hands-on exploration in an education context, students examine how data, design choices, and model behavior influence the fairness, usefulness, and impact of AI systems. The goal is not to develop commercial products or put them into service, but to build the confidence and capacity to shape AI for human good by understanding the principles underpinning the design and behavior of AI from an early age.

> ***Students don't need to be AI engineers to design AI. Even simple, age-appropriate explorations of how AI systems work can spark powerful learning — and help students see they can shape technology, not just be shaped by it.***
>
> - Cathy Adams, Professor of Educational Computing, University of Alberta

Designing AI Competences

1 Describe how AI systems can be designed to support a solution to a community problem.

Knowledge: K2.3, K3.2 **Skills:** Collaboration, Problem Solving, Self and Social Awareness **Attitudes:** Curious, Innovative Responsible

Learners explore how AI can solve real-world problems by identifying a community need that could be addressed with AI, considering how to design AI to contribute to a solution, and evaluating the potential benefits, risks, and limitations.

Primary Education Scenario

Develop a method for sorting healthy vs. unhealthy snacks for the school cafeteria by gathering images of real snack items from home or the cafeteria, labeling them, and testing how the method classifies new items.

Secondary Education Scenario

Propose how AI could help recommend after-school activities based on interests by exploring what data would be needed, how the AI would make decisions, and what parts of the solution should involve human input.

2 Compare the capabilities and limitations of AI systems that follow algorithms created by humans with those that make predictions based on data.

Knowledge: K1.2, K1.4 **Skills:** Computational Thinking, Problem Solving **Attitudes:** Curious

Learners examine the difference between systems that follow fixed rules (or manually programmed logic) and machine learning models to understand the value of machine learning and determine when each approach is most useful or appropriate.

Primary Education Scenario

Compare a method for organizing animals based on physical characteristics with one that groups animals based on habitat and behavior, then discuss when each approach is useful.

Secondary Education Scenario

Program a simple chatbot using conditional logic (e.g., to help people select a book), and compare its capabilities to those of a machine learning–based system handling the same task.

3 Collect and curate data that could be used to train an AI model by considering relevance, representation, and potential impact.

Knowledge: K1.2, K2.2, K2.4 **Skills:** Computational Thinking, Self and Social Awareness **Attitudes:** Innovative, Responsible

Learners discover how data is labeled, selected, and prepared to train an AI model. They learn how data quality and representation affect the model's performance and potential effect on people.

Primary Education Scenario

Label and sort building blocks based on specific features (e.g., shape, color), then create a decision tree to categorize new blocks.

Secondary Education Scenario

Explore how a basic AI model can be trained to recognize recyclable materials from photos taken in real life or collected online, then describe the impact the data had on the model's performance.

4 Evaluate AI systems using defined criteria, expected outcomes, and user feedback.

Knowledge: K1.2, K2.3 **Skills:** Collaboration, Computational Thinking **Attitudes:** Innovative, Adaptable

Learners set criteria for a successful AI system, test it with various inputs, and evaluate its performance to make improvements. They use an iterative process shaped by feedback from diverse users.

Primary Education Scenario

Use a generative AI tool to create a joke or riddle by defining what makes a good joke, rating the system's responses, and trying new prompts to improve results.

Secondary Education Scenario

Evaluate AI systems by testing different types of AI models with the same datasets for the same task, then discuss and propose ways to improve them that includes user feedback.

5 Describe an AI model's purpose, intended users, and its limitations.

Knowledge: K1.2, K2.1 **Skills:** Communication, Problem Solving, Self and Social Awareness **Attitudes:** Curious, Responsible

Learners describe the purpose of an AI model, the data used to train it, and what it can or cannot do well. They help others develop a realistic understanding of the model's capabilities and limitations.

Primary Education Scenario

Direct a classmate, who is role-playing as a robot, to sort snacks or animals by color, size, or shape, and observe how changing the rules creates confusion.

Secondary Education Scenario

Create a model card (brief, structured document) to summarize how a machine learning model works, its training data, intended uses, and possible limitations.

06

What's Coming Next?

During the review period, a public online survey, as well as a series of focus groups and stakeholder discussions, will be conducted to gather feedback on the draft framework. These sessions will engage policymakers, teachers, educators, school leaders, NGO representatives, academics, and other relevant stakeholders. Consultations will also take place at the European Commission's Digital Education Stakeholder Forum and through the European Digital Education Hub. Blogs, webinars, and announcements will be shared by the European Commission, OECD, and Code.org throughout the process.

The final version of the framework will reflect international input and will be published in 2026, alongside a limited set of AI literacy exemplars.

Over the next few months, we invite feedback from stakeholders worldwide. To provide feedback, visit teachai.org/ailiteracy/review.

Click to Review

Use AI to Explore the AILit Framework!

Click for Prompt

A large language model (LLM) is an AI model specialized for tasks like natural language processing, text generation, and translation. A prompt is a carefully crafted set of directions for an LLM-based chatbot and can be used to help explore a document, ask critical questions, and reflect on the content. Follow the directions to explore the AILit Framework using an LLM-based chatbot:

Navigate to the sample prompt via the button above or visit teachai.org/ailiteracy/prompt. On this page, you will find the prompt text along with step-by-step instructions.

- Click the "Copy the Prompt" button to copy the prompt.
- Paste the prompt text into the chat interface.
- After pasting the prompt, upload the PDF of the AILit Framework into the chatbot.
- Finally, interact with the chatbot by asking it questions and following the guidance to explore AILit Framework.

Within the inherent limitations of an LLM, this prompt and these directions are designed to create accurate, document-based responses that include exact quotations with proper citations. Please use the chatbot in accordance with all relevant guidelines.

07

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