

AI LITERACY

From tool use to responsible participation

A research-based presentation for teachers, lecturers and materials designers

Empowering Learners for the Age of AI

An AI Literacy Framework for Primary and Secondary Education



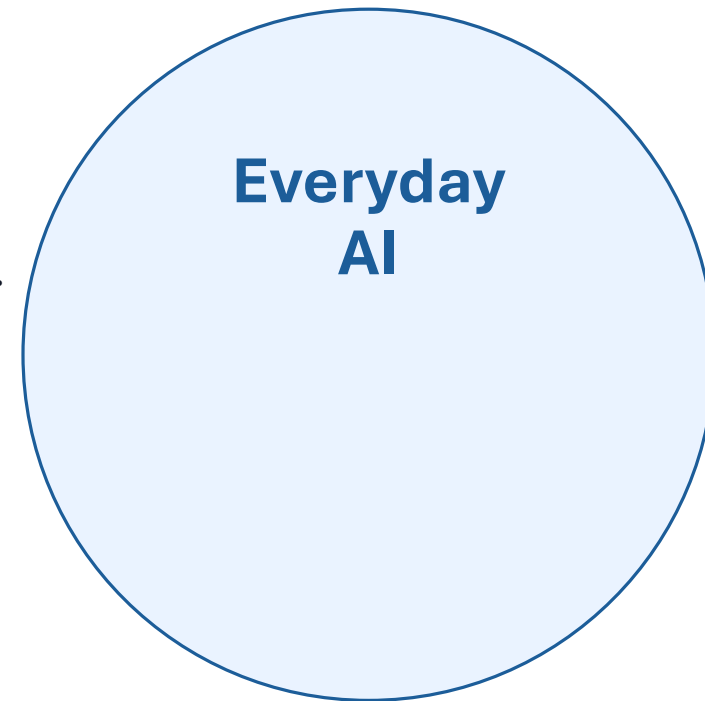


Why AI literacy matters now

AI is already in learners' everyday information, communication and creativity practices.

AI is no longer a specialist topic.

- Learners meet AI through search, translation, writing support, recommendation systems and generative tools.
- Many users recognise AI products but do not understand the concepts, limitations or ethical issues behind them.
- Education therefore needs to move from “tool training” to judgement, agency and responsible participation.



SEARCH

TRANSLATE

GENERATE



A working definition

AI literacy is a multidimensional competence, not a single technical skill.

The capacity to understand, use, evaluate, create with and act responsibly around AI systems.

(Long & Magerko, 2020; Ng et al., 2021; Chiu et al., 2024)

Key shift

**from “What can this tool do?”
to “When, why and how should we use it?”**

Not only

coding, prompting or
operating tools

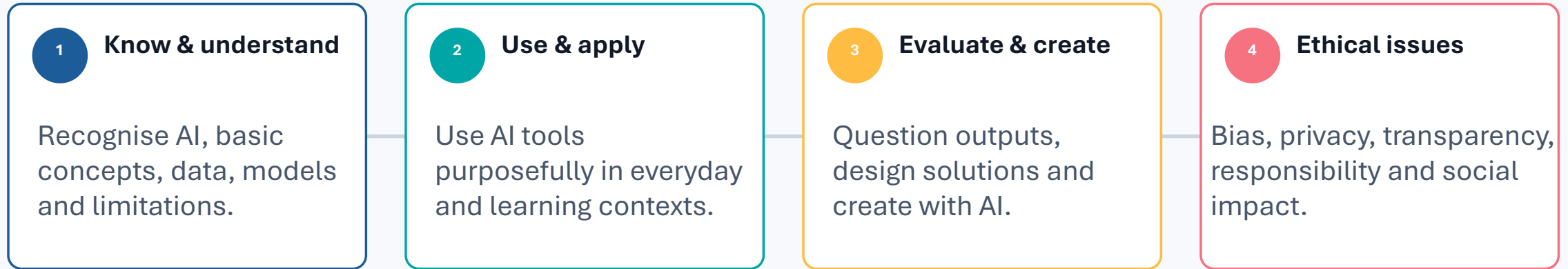
Also

critical judgement,
ethics, collaboration
and self-reflection



Core domains of AI literacy

The literature converges on a progression from knowledge to responsible action.



Material design implication

Activities should not stop at “try the tool”. They should require explanation, comparison, justification and reflection.



AI literacy vs. AI competency

Recent work distinguishes knowing from confident, beneficial application.

AI literacy

knowing what and why

- recognise AI systems
- understand data and model limits
- evaluate outputs and risks

AI competency

applying well and reflectively

- use AI for purposeful goals
- collaborate with AI and others
- act with confidence and self-reflection

Design test: Can learners explain their AI-assisted decision?



AI literacy is interdisciplinary

It connects digital competence, data literacy, computational thinking, ethics and citizenship.

Digital competence

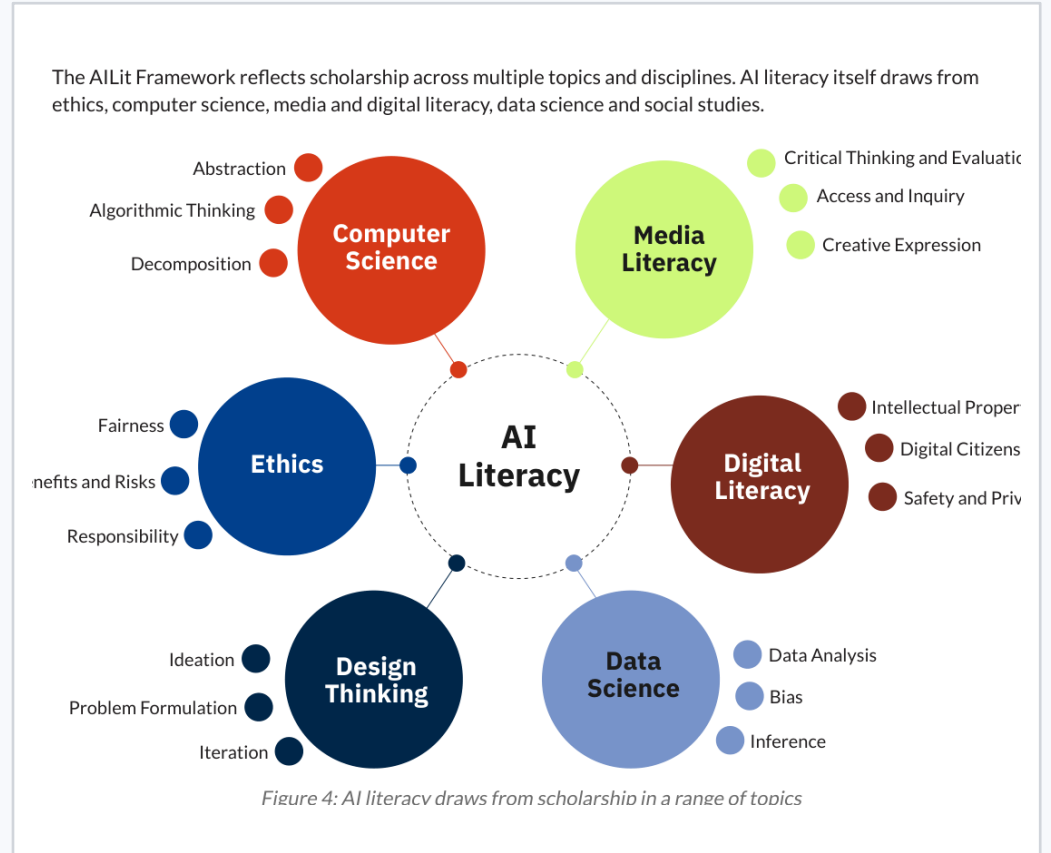
access, evaluate, communicate, create and act safely online

Data + algorithms

understand patterns, training data, probabilities and model limitations

Human-centred ethics

recognise bias, privacy issues, rights, responsibility and social consequences



For language education, this means AI literacy is also communicative: prompts, feedback, stance, register, authorship and audience awareness all matter.



What K-12 implementation research shows

AI literacy is still emerging, and implementation is uneven.

Two broad approaches

learning experiences + theoretical/curricular perspectives

Common limitation

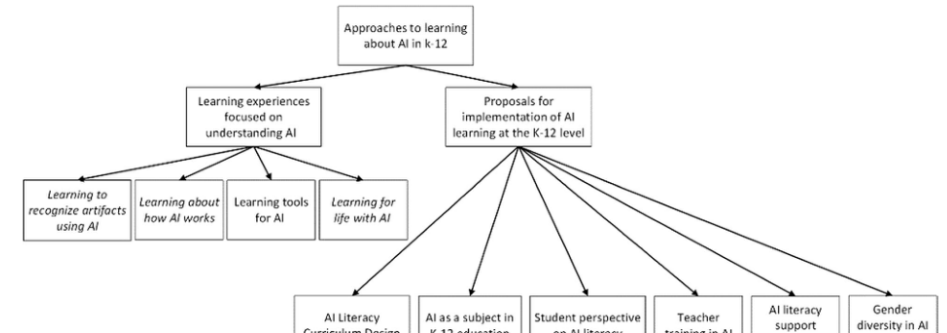
many activities teach technical or applied skills but do not rigorously assess learning outcomes

Curricular recommendation

integrate AI into subjects through interdisciplinary, contextualised and project-based work

Teacher co-design is essential: teachers need AI understanding, pedagogical confidence and locally relevant materials.

Fig. 5 Country participation: number of papers by country





A teachable progression for materials design

Use a sequence that moves from recognition to reflective action.

Lesson design principle

AI literacy activities should ask learners to explain, compare, verify, revise and justify.





Activity bank: five classroom-ready task types

Each task can be adapted for language, STEM or teacher education contexts.

AI or not?

Students classify everyday tools and justify their reasoning.

Bias detective

Compare AI outputs for fairness, stereotypes and missing perspectives.

Prompt ladder

Revise a weak prompt into a precise, ethical and contextualised one.

Data-to-decision

Use a small dataset to see how categories shape predictions.

Human-in-the-loop

Use AI feedback, then accept, reject or revise with reasons.

Material designer's rule: every AI task should include a product and a reflection.



Assessment: what should we measure?

AI literacy assessment should combine cognitive, practical and reflective evidence.

1. Knowledge evidence

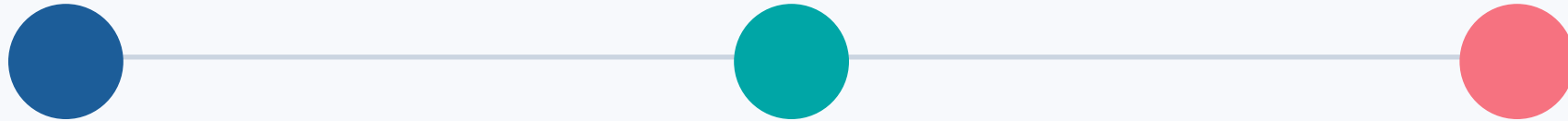
short tests, concept checks,
explanations of how AI works

2. Performance evidence

AI-assisted products, prompts,
revisions, comparisons and
decisions

3. Dispositional evidence

confidence, perceived ability,
ethical awareness and self-
reflection



Reliable assessment should not reduce AI literacy to tool-use frequency or a single mean score.

Use rubrics that ask: What did the learner understand? What did they produce?
What judgement did they demonstrate?



Risks and responsibilities

Responsible AI literacy prepares learners for uncertainty, not perfect answers.

Bias

AI reflects human choices, data and power relations.

Reliability

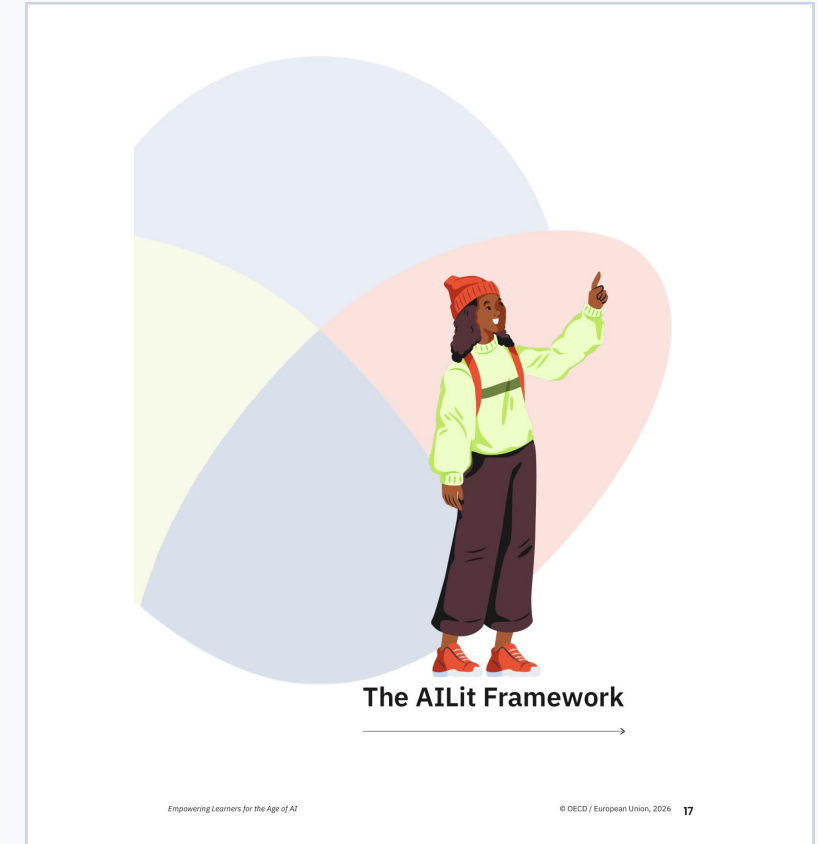
Generative AI can produce plausible but inaccurate outputs.

Privacy

Learners need to understand data disclosure and consent.

Sustainability

AI systems have material and environmental costs.



Ethics is not an “extra topic”; it is part of competent use.



Design principles for AI literacy materials

A practical checklist for teachers and materials writers.

1 Contextualise

Use real learner problems, not abstract tool demonstrations.

2 Make thinking visible

Ask learners to show prompts, revisions, sources and decisions.

3 Blend modes

Use unplugged activities, discussion, projects and AI tools.

4 Build agency

Students decide when AI helps and when it should be avoided.

5 Co-design locally

Teachers adapt tasks to curriculum, age, language level and school conditions.



A 45-minute sample lesson structure

A flexible model for introducing AI literacy in teacher education or secondary education.

0–5 min **Hook** AI or not? Quick classification of familiar tools.

5–15 min **Concept input** Explain data, patterns, probability and limitations with examples.

15–28 min **Guided task** Students prompt an AI system, compare outputs and identify risks.

28–38 min **Creation** Students revise a text/product and document decisions.

38–45 min **Reflection** Exit ticket: When should I use, question or avoid AI?

Assessment evidence:
classification rationale + prompt revision + output evaluation + reflection ticket.



The final takeaway

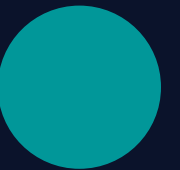
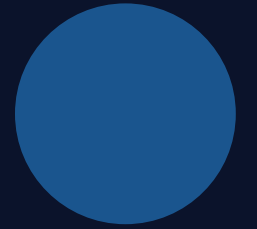
Do not ask only:

“Can students use AI?”

Ask instead:

“Can students explain, evaluate and justify their AI use responsibly?”

That is the difference between tool use and AI literacy.





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