

STAC



**SCIENCE & TECHNOLOGY
ADVANCEMENT CENTER**

Getting Started with AI in Science Education for Sensemaking

NSTA AI in Education Pathway

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About Us

The ***Science & Technology Advancement Center (STAC)***, is a nonprofit organization that works with states, districts, and companies to design, develop and implement high quality science programs. We focus on integrating new and emerging technologies in classroom settings to support 3-dimensional learning.

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What we will explore today



- Understanding AI
- Navigating Limitations
- Preserving Science Learning
- STAC AI Literacy Framework
- Practical Application

What is AI?

AI refers to computer systems designed to perform tasks that typically require human intelligence, such as:

- Recognizing patterns
- Understanding language patterns
- Making predictions
- Generating text, images, or ideas

AI systems identify patterns in large datasets and generate outputs based on probability, not understanding, intuition, or consciousness.



Where is AI?



- AI is becoming an integral part of how we learn, work, and communicate. AI systems are embedded in everyday tools students and teachers use.
- The recent evolution of AI has made it usable, affordable, and widely available to educators and students.
- AI is rapidly entering classrooms, making traditional "answer-getting" tasks vulnerable to shortcutting. Traditional assignments such as worksheets, simple recall questions, and basic research assignments are easily completed by AI.

The question is no longer whether to use AI, but how to use it responsibly to enhance student critical thinking.

Avoidance is No Longer an Option

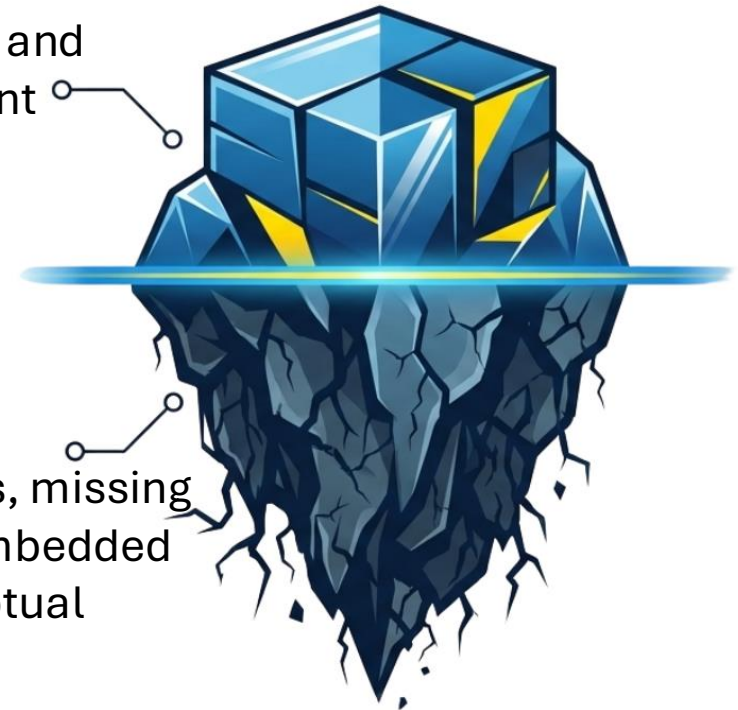
- Students use AI even when teachers aren't aware
- Lack of guidance = misuse
- AI is not designed under a pedagogical framework
 - This is the key. AI is Google on steroids, but it's not intended to be a replacement for a professional educator

Shift from "policing" AI to designing better sensemaking tasks where student reasoning is non-negotiable.

AI as an “Imperfect Partner”

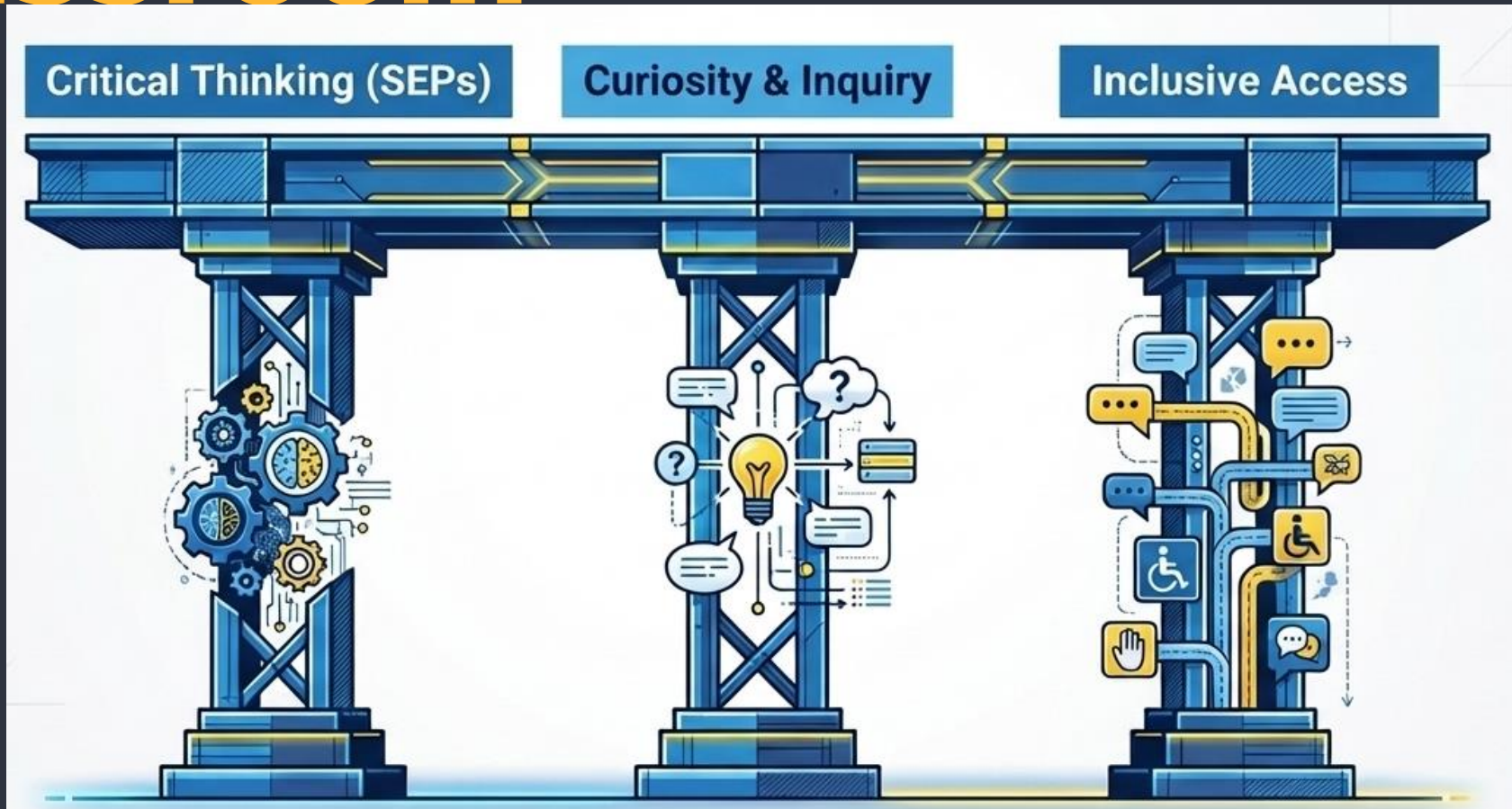
- AI can quickly compile and summarize existing scientific knowledge, helping students access foundational concepts before diving into investigations.
- AI can create explanations that sound scientific and follow logical patterns, providing starting points for student analysis.

Polished,
confident, and
highly fluent
scientific
language



Inaccurate
assumptions, missing
evidence, embedded
bias, conceptual
incoherence

Elevating the Science Classroom



Preserving the Learning







Use AI to Increase Critical Thinking Skills through the SEPs

- Critique explanations and claims
- Surface misconceptions
- Examine how models are trained and where they fail
- Support arguments with evidence and reasoning

AI Literacy Framework

A Simple Planning Test for any AI Activity

In small groups, discuss the following:

<p>1</p>  <p>What thinking MUST remain human?</p>	<p>2</p>  <p>Where does AI scaffold rather than substitute?</p>
<p>3</p>  <p>What evidence of student reasoning must I collect?</p>	<p>4</p>  <p>How should students verify, reject, revise, or defend the output?</p>

Tool Agnostic. Ready to Use.



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Thank you!

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NSTA Survey

