



STAC

**SCIENCE & TECHNOLOGY
ADVANCEMENT CENTER**

**Leading Purposeful AI for Sensemaking in
Science Education**

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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Goals for Session

By the end of this session, you will be able to:

- Clarify what AI is and is not in science classrooms.
- Explore how AI supports NGSS sensemaking.
- Use AI to strengthen student questioning and reasoning.
- Promote ethical, responsible AI use in science learning.

Why AI Leadership Matters in Science Education

- AI is becoming a routine part of students' and teachers' lives
- Science educators need shared language and clear expectations
- Without guidance, AI use can become confusing, inconsistent, or superficial
- With strong leadership, AI can support curiosity, explanation-building, and equitable access

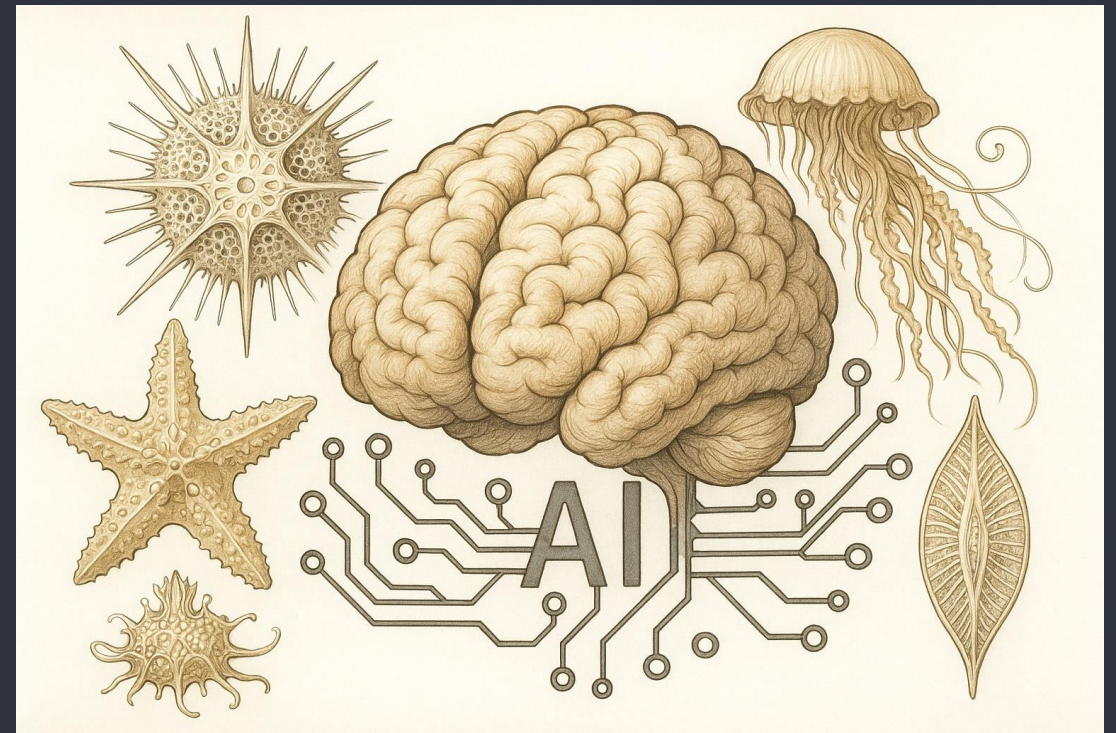


What is Purposeful AI Use

- AI supports **science sensemaking**, not answer-getting
- AI helps students ask better questions, compare ideas, and revise explanations
- AI can extend access to feedback, language support, and idea generation
- The goal is not more technology; the goal is deeper thinking about phenomena

What Educators and Leaders Must Do

- Create a clear purpose for AI use in science
- Establish consistent language across classrooms and teams
- Model productive uses of AI for planning, questioning, and reflection
- Build structures that support thoughtful experimentation
- Engage families and the community with transparency and trust



Communicating About AI in Clear, Consistent Ways

- “AI can help us think, but it should not do the thinking for us.”
- “We use AI to support questioning, reasoning, and revision.”
- “Students still need evidence, explanation, and scientific judgment.”
- “AI outputs are starting points to evaluate, not facts to accept.”

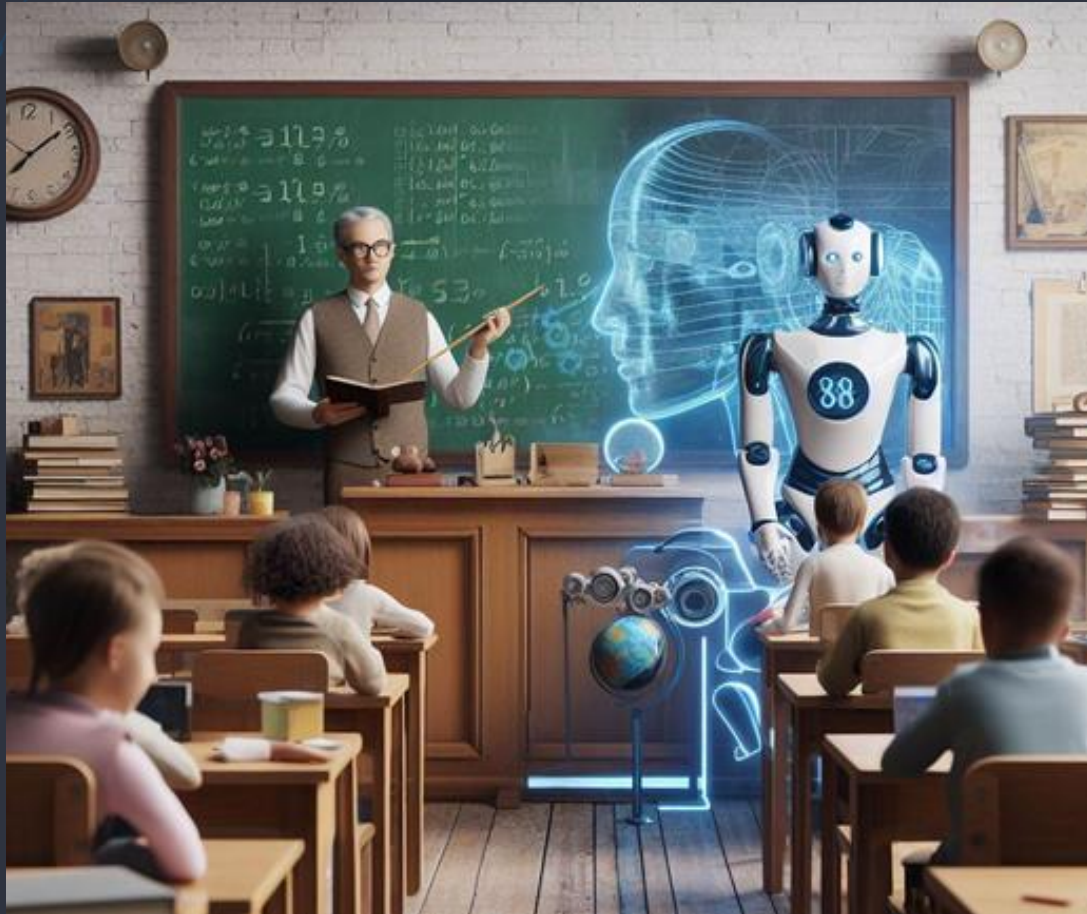
Classroom AI Agreements Teacher Guide



What Teachers Need

- Time to explore and test tools safely
- Examples tied to real science instruction
- Clear guardrails for ethical and appropriate use
- Collaborative planning and peer sharing
- Permission to start small and learn openly

Designing AI Use That Supports All Learners



- Use AI to scaffold language, reading, and idea development
- Support multilingual learners with clarification and rephrasing
- Offer multiple entry points into complex science ideas
- Teach students to question bias, accuracy, and missing perspectives
- Ensure AI use strengthens inclusion rather than widening opportunity gaps

Building Trust Beyond the Classroom

- Explain why AI is being used in science learning
- Share examples of responsible classroom use
- Clarify expectations for student thinking and academic integrity
- Invite family questions and feedback
- Frame AI as something students should learn to use thoughtfully, not passively

Tool Agnostic. Ready to Use.



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Thank you!

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NSTA Survey Session 2

