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| **NIH SciEd 2024**  **Roundtable Discussion Questions for Integrating AI into Science Education** |  |

**Primary Discussion Questions**

Please select one of more of these questions to address at your table.

* Is AI considered a threat, a help, or some of both to teachers and education? How can NIH SciEd programs and other initiatives help inform this narrative?
* Are you using AI in your SciEd program? If so, how?
  + How do you teach about AI beyond ChatGPT and students’ concepts of how AI is relevant to their lives? How do you provide real world AI examples that are meaningful to the level of student in your program?
  + How do you include a focus on disparities when integrating AI into science education?
* What are the main barriers or concerns to integrating AI into STEM and SEPA curricula? What factors have you experienced that might facilitate or mitigate barriers to successful integration if that is the goal? Is there a desire to NOT include AI in your programs or classroom curricula? What research questions are generated from these discussions?
* What part do principles of ethics play in a STEM curriculum that includes AI? What practical examples of ethics in the context of AI are most helpful to students?
* What issues related to bias should be included along with AI content?

**Additional Discussion Questions**

* How does school policy impact the teaching of AI in classrooms or using AI in K-12 education?
* SciEd programs represent a very wide range of students, grade levels, settings, curricula, etc. What issues of feasibility and acceptability about integrating AI are relevant to your current SciEd or other program? What educational research pursuits could help address those issues?
* What is one tip or experience could you share with other SciEd teams who are thinking of ways to design AI integration into their current or future SciEd programs?

**Links for Discussion and AI Resources**

You may wish to review these resources at your table, or explore them later. We will upload this document to the NIH SEPA website after the conference.

**UNESCO**

* K-12 AI Curriculum – a mapping of government endorsed AI Curriculum (2021)
  + <https://unesdoc.unesco.org/ark:/48223/pf0000380602.locale=en>
  + Available in multiple languages
* AI Competency Frameworks for School Children & Teachers (2024)

<https://www.unesco.org/en/digital-education/ai-future-learning/competency-frameworks>

* Guidance for Generative AI in Education & Research

<https://unesdoc.unesco.org/ark:/48223/pf0000386693>

* AI & Education – Guidance for Policymakers

<https://unesdoc.unesco.org/ark:/48223/pf0000376709>

* Artificial Intelligence and the Future of Learning

<https://www.unesco.org/en/digital-education/ai-future-learning>

**NSF – AI Education and AI in Education**

<https://new.nsf.gov/science-matters/ai-education-ai-education>

**Games that Teach AI Concepts**

<https://www.arin561.org/media>

### **The Artificial Intelligence (AI) for K-12 initiative (AI4K12) - jointly sponsored by**[**AAAI**](https://aaai.org/)**and**[**CSTA**](https://csteachers.org/)**.**

*This initiative is developing (1) national guidelines for AI education for K-12, (2) an online, curated resource Directory to facilitate AI instruction, and (3) a community of practitioners, researchers, resource and tool developers focused on the AI for K-12 audience*

<https://ai4k12.org/>

**Examples of Application of AI and Education**

* GPT-4o (Omni) Demo of Math Tutoring

<https://www.youtube.com/watch?v=IvXZCocyU_M>

* Application of GPT-4o Accessibility for **Vision**

<https://www.youtube.com/watch?v=KwNUJ69RbwY>

* GPT-4o and what it Means for Education

<https://www.youtube.com/watch?v=uImhvVDVr88>

* RAND: Using AI Tools in K-12 Classrooms

<https://www.rand.org/pubs/research_reports/RRA956-21.html#:~:text=Among%20those%20teachers%20who%20use,students%20and%20to%20generate%20materials>