



Crosswalk of STEM Standards (ISTE, NGSS, CCSS) to AVID

International Society for Technology in Education (ISTE)

“The 2016 ISTE Standards for Students emphasize the skills and qualities we want for students, enabling them to engage and thrive in a connected, digital world. The standards are designed for use by educators across the curriculum, with every age student, with a goal of cultivating these skills throughout a student’s academic career. Both students and teachers will be responsible for achieving foundational technology skills to fully apply the standards. The reward, however, will be educators who skillfully mentor and inspire students to amplify learning with technology and challenge them to be agents of their own learning.”¹

Next Generation Science Standards (NGSS)

“A Science Framework for K-12 Science Education provides the blueprint for developing the Next Generation Science Standards (NGSS). The Framework expresses a vision in science education that requires students to operate at the nexus of three dimensions of learning: Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas. The Framework identified a small number of disciplinary core ideas that all students should learn with increasing depth and sophistication, from Kindergarten through grade twelve.”²

Common Core State Standards (CCSS)

“The Common Core is a set of high-quality academic standards in mathematics and English language arts/literacy (ELA). These learning goals outline what a student should know and be able to do at the end of each grade. The standards were created to ensure that all students graduate from high school with the skills and knowledge necessary to succeed in college, career, and life, regardless of where they live.”³

Standards for Mathematical Practice

“The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important ‘processes and proficiencies’ with longstanding importance in mathematics education.”⁴

English Language Arts Standards, Science and Technical Subjects, Grade 11-12

“The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.”⁵

Overarching Practice: Question to define problems and set goals

ISTE Standards for Students: 1. Empowered Learner: Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.

NGSS: Science and Engineering Practices: 1. Asking Questions and Defining Problems

CCSS: Standards for Mathematical Practice: 1. Make sense of problems and persevere in solving them.

CCSS: English Language Arts Standards, Science and Technical Subjects, Grade 11–12: RST.11-12.9: Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Related AVID Anchor Standards	AVID Curricula ⁶	Core Strategies	AVID Professional Learning Opp's ⁷
<ul style="list-style-type: none"> • <i>Use questioning techniques to engage in discussions and think critically about content and concepts (AP.I.1)</i> • <i>Identify and plan for the steps necessary to accomplish various types of goals (AP.O.3)</i> 	<ul style="list-style-type: none"> • <i>AVID Critical Thinking and Engagement (Ch. 4)</i> • <i>AVID Elementary Foundations (Ch. 2)</i> • <i>AVID Tutorial Guide (Unit 3)</i> • <i>AVID Writing for Disciplinary Literacy (Ch. 6)</i> 	<ul style="list-style-type: none"> • Socratic Seminar • KWLA • Higher-Level Thinking • Collaborative Study Groups (Academic Skill 2) 	<ul style="list-style-type: none"> • AVID Elementary: STEM (Grades 3-6) • STEM Middle School • Socratic Seminar • Using Costa's Levels of Thinking to Increase Inquiry • Digital Teaching & Learning

Overarching Practice: Plan investigations, using precision and following complex procedures

ISTE Standards for Students: 3. Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others. 4. Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

NGSS: Science and Engineering Practices: 3: Planning and Carrying Out Investigations. 5: Using Mathematics and Computational Thinking

CCSS: Standards for Mathematical Practice: 6: Attend to precision

CCSS: English Language Arts Standards, Science and Technical Subjects, Grade 11–12: RST.11-12.3: Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Related AVID Anchor Standards	AVID Curricula	Core Strategies	AVID Professional Learning Opp's
<ul style="list-style-type: none"> • <i>Upon arriving at a solution, identify generalized steps/processes that could be used to solve similar problems (AP.1.3)</i> • <i>Continuously reflect and refine strategies to promote learning and academic success (AP.1.5)</i> 	<ul style="list-style-type: none"> • <i>AVID College Readiness: Working with Sources</i> • <i>The Write Path I Science (Unit 3)</i> • <i>AVID Writing for Disciplinary Literacy (Ch. 6)</i> • <i>AVID STEM Summer Bridge Program: Math for 7th Grade</i> • <i>AVID STEM Summer Bridge Program: Algebra Readiness</i> 	<ul style="list-style-type: none"> • ASFI: Analyzing a Prompt, Selective and Purpose-Driven Reading, Focused Note-Taking, and Integrating Sources Into Text 	<ul style="list-style-type: none"> • AVID Elementary: STEM (Grades 3-6) • Essential Academic Skills for College Readiness • Science • Computer Science for the Content Classroom (Grades 3-12) in Collaboration with Amazon Future Engineer

Overarching Practice: Develop and use models

ISTE Standards for Students: 5: Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

NGSS: Science and Engineering Practices: 2: Developing and Using Models

CCSS: Standards for Mathematical Practice: 4: Model with Mathematics

Related AVID Anchor Standards	AVID Curricula	Core Strategies	AVID Professional Learning Opp's
<ul style="list-style-type: none"> • <i>Upon arriving at a solution, identify generalized steps/processes that could be used to solve similar problems (AP.1.3)</i> 	<ul style="list-style-type: none"> • <i>AVID Critical Thinking and Engagement (Ch. 4)</i> • <i>AVID Elementary Foundations (Ch. 2)</i> • <i>AVID Tutorial Guide (Unit 2)</i> 	<ul style="list-style-type: none"> • Socratic Seminar • Collaborative Study Groups • Higher-Level Thinking 	<ul style="list-style-type: none"> • AVID Elementary: STEM (Grades 3-6) • STEM Middle School • Socratic Seminar • Using Collaborative Study Groups in the Content Classroom • Using Inquiry to Increase Rigor • Tutorology

Overarching Practice: Construct explanations through reasoning and integration of information

NGSS: Science and Engineering Practices: 6: Constructing Explanations and Designing Solutions.

CCSS: Standards for Mathematical Practice: 2: Reason abstractly and quantitatively.

CCSS: English Language Arts Standards, Science and Technical Subjects, Grade 11–12: RST.11-12.2: Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. RST.11-12.6: Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text identifying important issues that remain unresolved. RST.11-12.7: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. RST.11-12.8: Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information. RST.11-12.10: ...Read and comprehend science/technical texts independently and proficiently.

Related AVID Anchor Standards	AVID Curricula	Core Strategies	AVID Professional Learning Opp's
<ul style="list-style-type: none"> <i>Synthesize and organize information effectively, including usage of digital tools (AP.I.9)</i> 	<ul style="list-style-type: none"> <i>AVID College Readiness: Working with Sources</i> <i>The Write Path I Science (Unit 3)</i> <i>AVID Writing for Disciplinary Literacy (Ch. 2)</i> <i>AVID STEM Summer Bridge Program: ProPhone and the Environment</i> 	<ul style="list-style-type: none"> ASFI: Integrating Sources Into Text Levels of Thinking Summarizing 	<ul style="list-style-type: none"> Essential Academic Skills for College Readiness AVID Elementary: STEM (Grades 3-6) STEM Middle School

Overarching Practice: Apply academic and technical skills to analyze and interpret data

NGSS: Science and Engineering Practices: 4: Analyzing and Interpreting Data.

CCSS: Standards for Mathematical Practice: 5: Use appropriate tools strategically. 7: Look for and make use of structure. 8: Look for and express regularity in repeated reasoning.

CCSS: English Language Arts Standards, Science and Technical Subjects, Grade 11–12: RST.11-12.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context... RST.11-12.5: Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

RST.11-12.8: Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

Related AVID Anchor Standards	AVID Curricula	Core Strategies	AVID Professional Learning Opp's
<ul style="list-style-type: none"> <i>Apply learning to demonstrate knowledge and achieve success (SA.SE.10)</i> 			<ul style="list-style-type: none"> AVID Career and Technical Education (CTE) Science

Overarching Practice: Collaborate and communicate effectively and with reason, supporting arguments with evidence

ISTE Standards for Students: 6. Creative Communicator: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals. 7: Global Collaborator: Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

NGSS: Science and Engineering Practices: 7: Engaging in Argument from Evidence. 8: Obtaining, Evaluating, and Communicating Information

CCSS: Standards for Mathematical Practice: 3: Construct viable arguments and critique the reasoning of others.

CCSS: English Language Arts Standards, Science and Technical Subjects, Grade 11–12: RST.11-12.1: Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

Related AVID Anchor Standards	AVID Curricula	Core Strategies	AVID Professional Learning Opp's
<ul style="list-style-type: none"> • <i>Clearly communicate verbally and non-verbally, including appropriate usage of technology (AP.C.7)</i> • <i>Synthesize and organize information effectively, including usage of digital tools (AP.I.9)</i> • <i>Cite evidence and support claims (AP.I.10)</i> 	<ul style="list-style-type: none"> • <i>AVID Academic Language and Literacy (Ch. 4)</i> • <i>AVID College Readiness: Working with Sources</i> • <i>AVID Writing for Disciplinary Literacy (Ch. 7)</i> • <i>AVID Critical Thinking and Engagement (Ch. 3)</i> • <i>AVID Tutorial Guide (Unit 3)</i> • <i>AVID Reading for Disciplinary Literacy (Ch. 6)</i> • <i>AVID STEM Summer Bridge Program: ProPhone and the Environment</i> 	<ul style="list-style-type: none"> • Socratic Seminar • Philosophical Chairs • Collaborative Structures • ASFI: Integrating Sources Into Text 	<ul style="list-style-type: none"> • AVID Academic Language and Literacy • Essential Academic Skills for College Readiness • Science 1 • Science 2

Overarching Practice: Act as a globally and digitally aware, responsible, and contributing citizen

ISTE Standards for Students: 2. Digital Citizen: Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

Related AVID Anchor Standards	AVID Curricula	Core Strategies	AVID Professional Learning Opp's
<ul style="list-style-type: none"> • <i>Participate in global citizenry (SA.SE.1)</i> 	<ul style="list-style-type: none"> • <i>AVID College and Careers (Ch. 1 and Ch. 3)</i> • <i>AVID Critical Thinking and Engagement (Ch. 5)</i> • <i>11th Grade Weeks at a Glance (Service-Learning Project)</i> • <i>AVID STEM Summer Bridge Program: ProPhone and the Environment</i> 		<ul style="list-style-type: none"> • Digital Teaching & Learning • STEM Middle School

¹ International Society for Technology in Education. (2016). ISTE Standards for Students. Retrieved from http://www.iste.org/docs/Standards-Resources/iste-standards_students-2016_one-sheet_final.pdf?sfvrsn=0.23432948779836327

² Next Generation Science Standards. (2013). Science and Engineering Practices in the NGSS. Retrieved from <https://www.nextgenscience.org/sites/default/files/Appendix%20F%20%20Science%20and%20Engineering%20Practices%20in%20the%20NGSS%20-%20FINAL%20060513.pdf>

³ Common Core State Standards Initiative. (n.d.). About the standards. Retrieved from <http://www.corestandards.org/about-the-standards>

⁴ Common Core State Standards Initiative. (n.d.). Standards for Mathematical Practice. Retrieved from <http://www.corestandards.org/Math/Practice>

⁵ Common Core State Standards Initiative. (n.d.). English Language Arts Standards: Writing introduction. Retrieved from <http://www.corestandards.org/ELA-Literacy/WHST/introduction>

⁶ Additional STEM-related AVID resources are available at <https://avidopenaccess.org/category/stem/>

⁷ For information on all AVID Professional Learning Opportunities, visit <https://www.avidpl.org/>