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Using AI to Increase Effectiveness and Educational Outcomes

June 23, 2024

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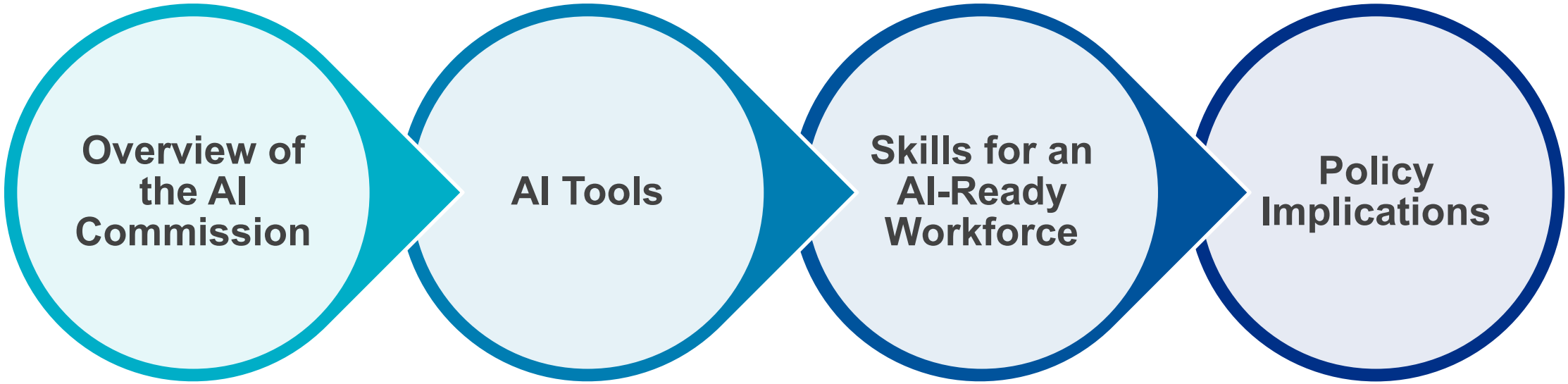
Menti:

What does AI mean to you?

Our Session Today



Our Charge

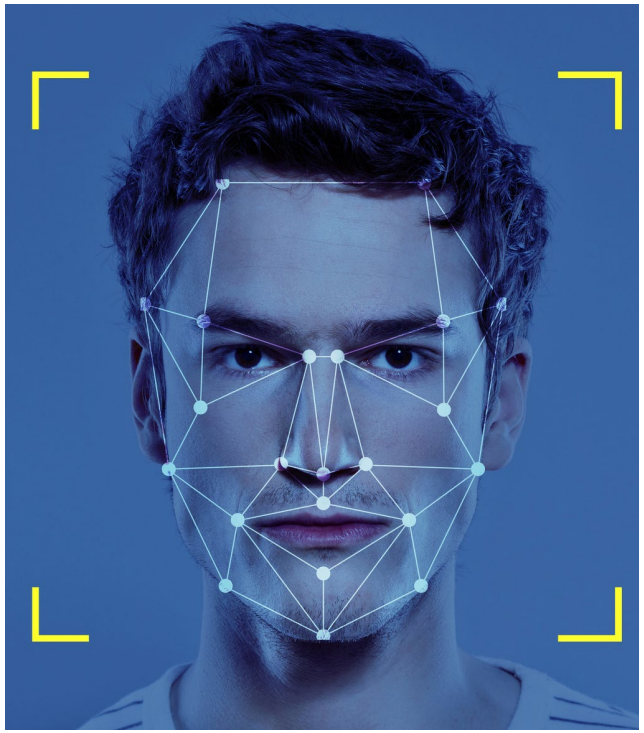
The SREB Commission on Artificial Intelligence in Education will evaluate research, industry data and advice from experts to determine how education can successfully adopt and integrate AI across the region and lead the nation. Based on this critical evaluation, the Commission will then develop recommendations for

- policies regarding the use of AI in K-12 and postsecondary education,
- use of AI in instruction to promote AI literacy among students, educators, and the workforce and
- the development of skills and seamless pathways in the education-to-workforce system to meet industry and state needs.

Commission Outcomes

Our commission will develop recommendations regarding:

- Integrating AI into K-12 and postsecondary classrooms
- Equipping K-12 and postsecondary students with the skills and knowledge for AI-related careers
- Adapting the education to workforce system to develop skills and seamless pathways that meet industry and state



Commission Focus:

AI in Education integrates artificial intelligence technologies to enhance learning, teaching, and leading. It equips students with the skills to use AI in a digitally driven future, solving complex problems and personalizing learning. AI in education advances efficiency, effectiveness, and accessibility, and mitigates disparities in an ethical manner without losing the human element of learning.

AI Commission Subcommittees

K-12 AI Policies

PSE AI Policies

K-12 AI Instruction

PSE AI Instruction

AI Skill Development

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AI Tools and Skills

How we use AI in our everyday lives…

Voice Assistants	Smart Home Devices	Streaming Services	Social Media
• Alexa • Siri	• Thermostats-Nest • Lights-Philips Hue • Locks-Yale	• Netflix • Spotify • YouTube	• Facebook • Instagram • TikTok
E-commerce Platforms	**Email Services**	**Navigation and Travel**	**Healthcare Apps**
• Amazon • eBay	• Gmail • Outlook	• Google Maps • Waze • Uber/Lyft	• Fitness Trackers • Symptom Checkers

*References to AI tools or solutions are for discussion purposes and do not imply endorsement in any way.

AI: Biggest Work Disruption…

49%

Skills irrelevant by 2025

56%

Entry-level jobs eliminated

60%

Jobs impacted

12M

Fewer jobs by 2030

41%

Executives expect to employ fewer workers

25%

Work tasks replaced

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How is AI used across career fields . . . ?

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AI Examples Across Industries

Agriculture, Food & Natural Resources

- AI-powered drones and sensors monitor crop health, soil conditions, and weather patterns to optimize farming practices.

Finance

- AI algorithms analyze transaction data to identify and prevent fraudulent activities.

Transportation, Distribution and Logistics

- AI analyzes traffic patterns to optimize delivery routes and reduce fuel consumption.

STEM

- AI tools assist researchers in data analysis, literature review, and experiment design.

How AI is used at work…

Your handout provides one example of how AI is used across all Career Clusters.

As you review these “use cases,” identify:

1- Skill—A skill that workers would need to more efficiently use these tools

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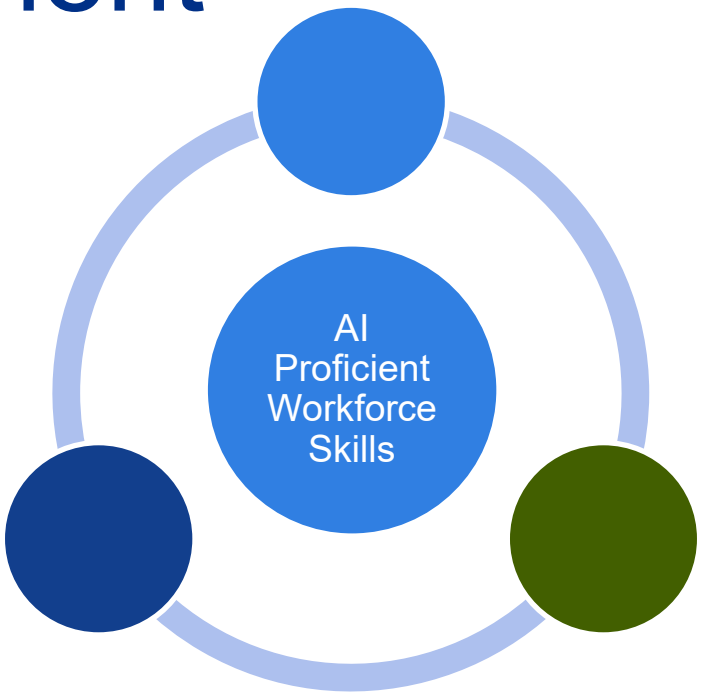
What Skills . . . ?

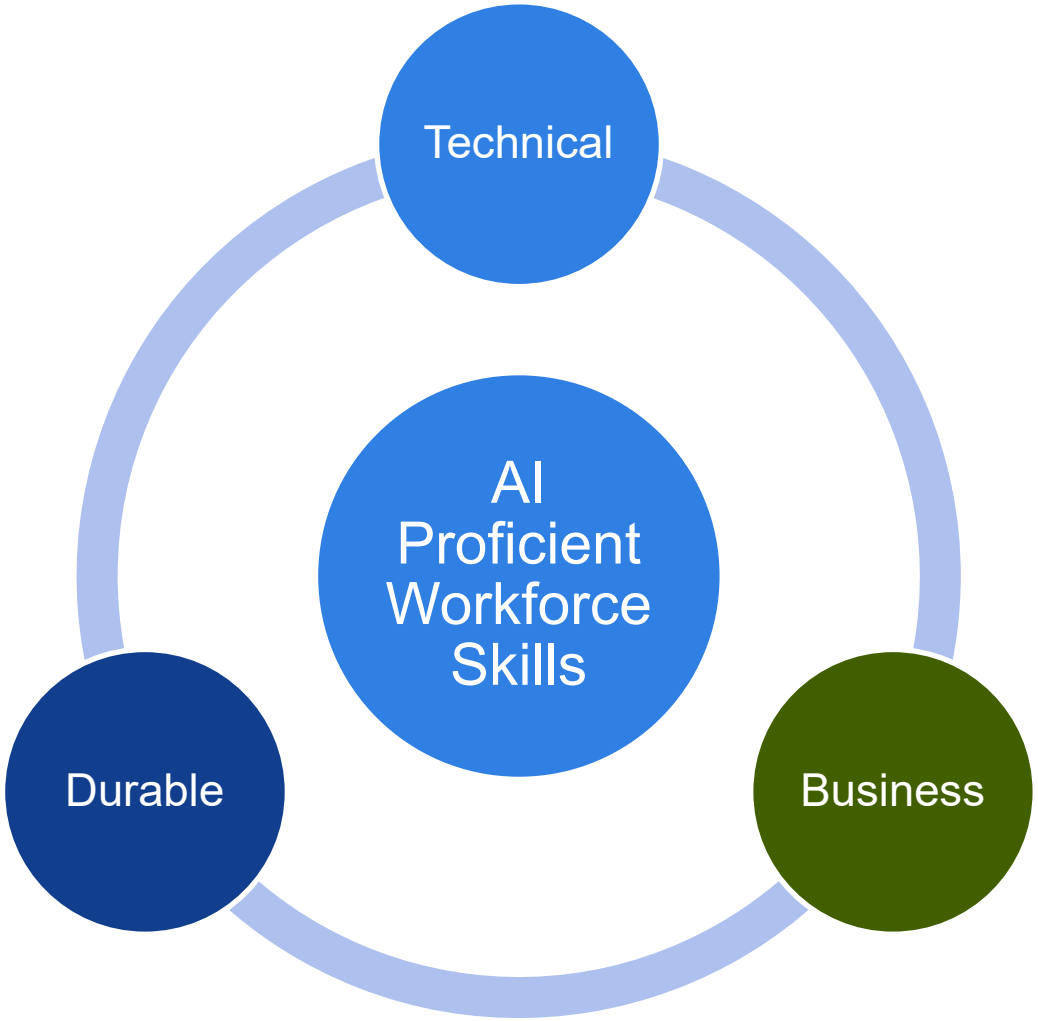
Skill Development



Know and Understand AI	Use and Apply AI	Evaluate and Create with or in AI
Elementary	Middle School	High School +

AI Ethics

Three Primary Areas



Durable Skills

Adaptability

- Flexibility to adapt to new technologies and changing environments.

Collaboration & Teamwork

- Ability to analyze complex problems and develop innovative solutions.

Communication Skills

- Capability to approach problems logically and creatively.

Continuous Learning

- Continuous learning mindset to keep up with evolving AI technologies and methodologies.

Creativity

- Ability to generate new and original ideas, approaches, and solutions by thinking outside the conventional framework.

Critical Thinking

- Ability to analyze complex problems and develop innovative solutions.

Leadership and Project Management

- Flexibility to adapt to new technologies and changing environments.

Problem Solving

- Capability to approach problems logically and creatively.

Business Skills

AI Ethics

- Understanding and applying ethical and legal principles to the development and deployment of AI technologies, ensuring fairness, transparency, and accountability while minimizing harm and bias.

Cybersecurity & Data Privacy

- Understanding of cybersecurity principles and practices to protect data and AI systems from threats, with a strong emphasis on safeguarding personal privacy and personal data.

Domain Knowledge

- Possessing expertise and understanding in specific fields or industries, which enables the effective application and adaptation of AI technologies to address unique challenges and opportunities within those domains, while exploring career opportunities and the uses of AI across various career fields beyond computer science and information technology.

Responsible AI

- Implementing AI technologies in a manner that is aligned with societal values and regulatory standards, promoting trust, safety, and the well-being of all stakeholders, while also educating individuals to become effective and responsible consumers of AI products.

Technical Skills

AI Technologies

- Understanding of the wide range of tools, techniques, and systems designed to perform tasks that typically require human intelligence, including machine learning, deep learning, natural language processing, language models, and computer vision.

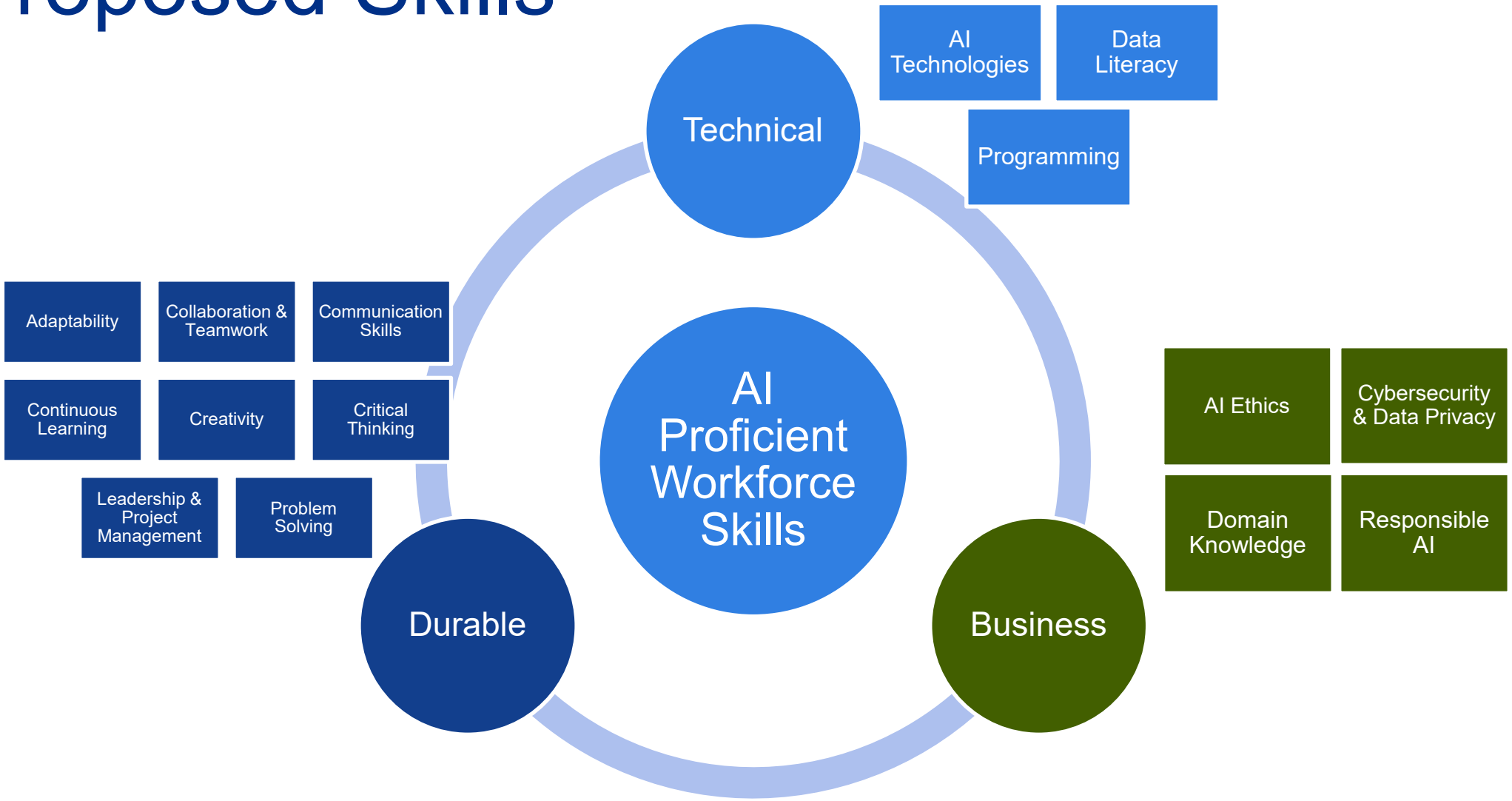
Data Literacy

- Skills in data collection, preprocessing, analysis, and visualization.

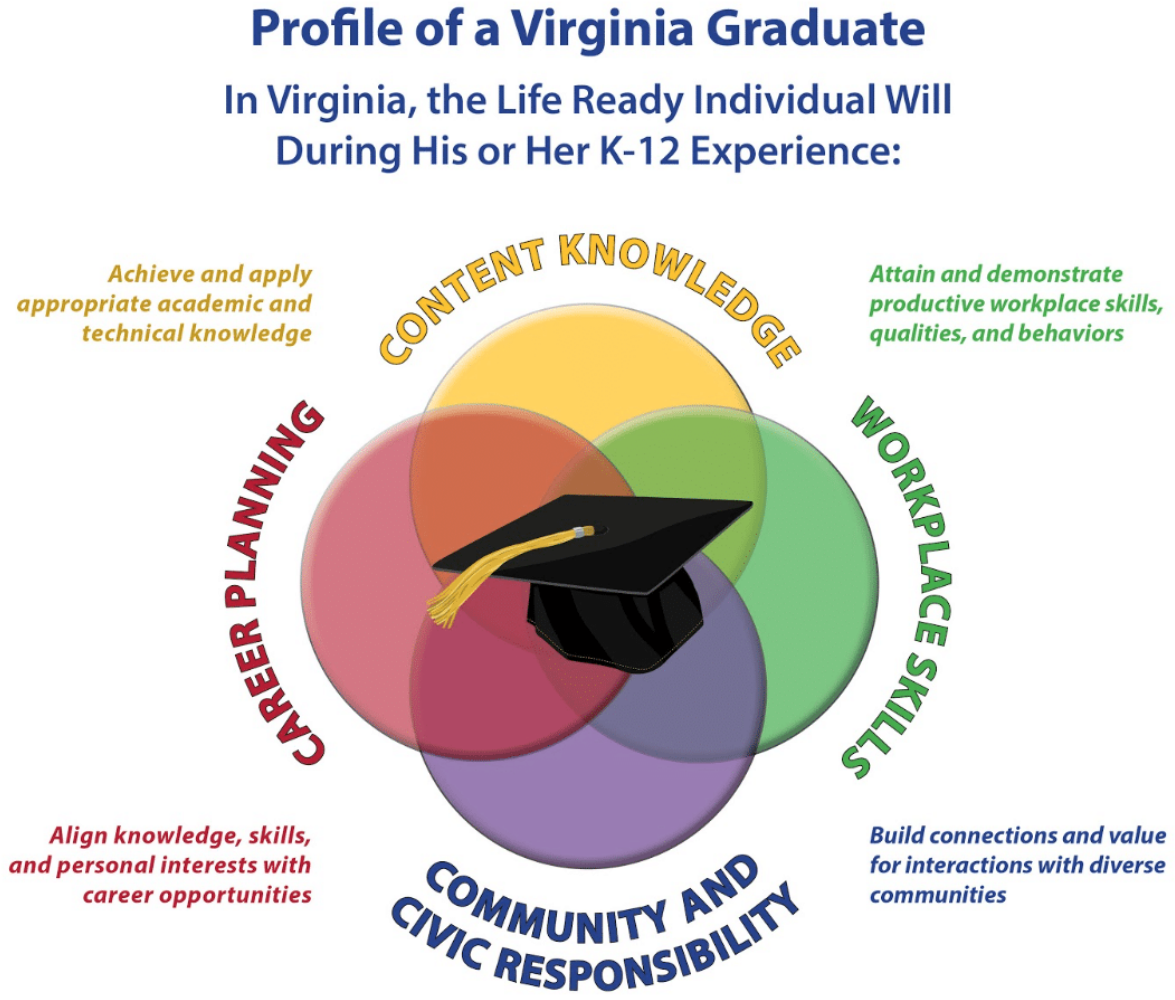
Programming

- Understanding the fundamental concepts of coding and programming.

Proposed Skills



Building on Existing Frameworks



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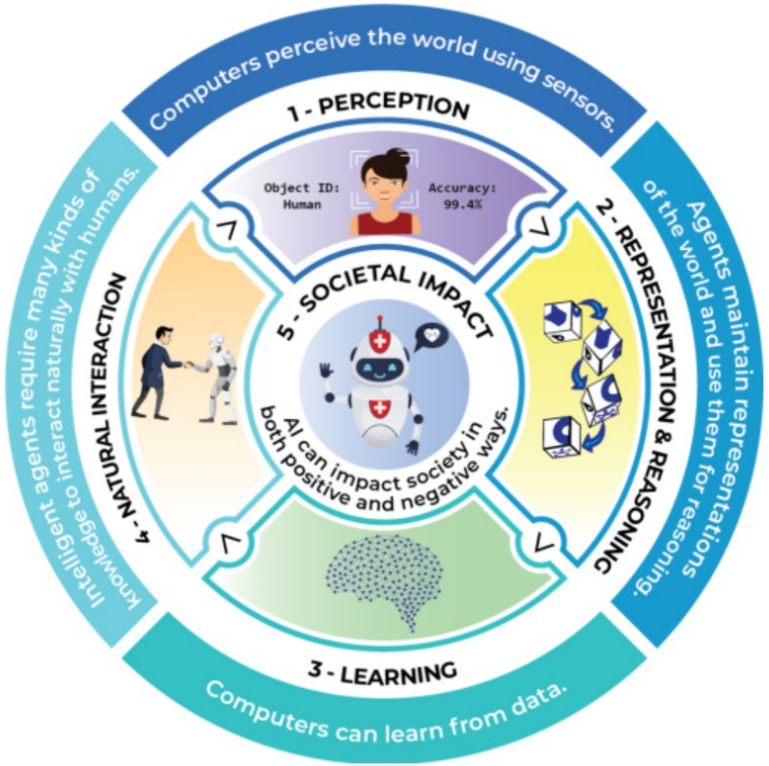
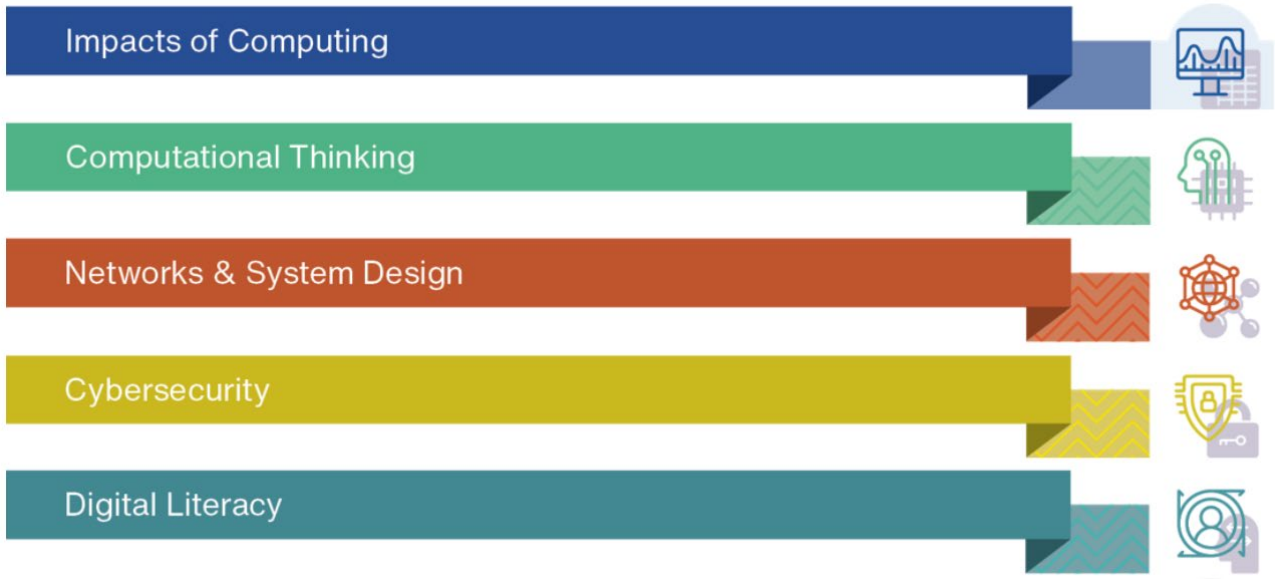


The Five Big Ideas in AI



PROFILE OF THE

South Carolina Graduate

WORLD-CLASS KNOWLEDGE

Rigorous standards in language arts and math for career and college readiness

Multiple languages, science, technology, engineering, mathematics (STEM), arts and social sciences

WORLD-CLASS SKILLS

Creativity and innovation

Critical thinking and problem solving

Collaboration and teamwork

Communication, information, media and technology

Knowing how to learn

LIFE AND CAREER CHARACTERISTICS

Integrity • Self-direction • Global perspective • Perseverance • Work ethic • Interpersonal skills

Adopted by: SC State Board of Education, SC Department of Education, SC Education Oversight Committee, SC Arts Alliance, SC Arts in Basic Curriculum Steering Committee, SCASCD, SC Chamber of Commerce, SC Council on Competitiveness, SC School Boards Association, TransformSC Schools and Districts.

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K-12 Learning Progression Example

NYS K-12 Computer Science and Digital Fluency Standards

Cybersecurity

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Risks	**K-1.CY.1** Identify reasons for keeping information private. ***The focus should be on discussing the reasons to keep certain information public (information you share with others) or private (information you keep to yourself or only share with your family).***	**2-3.CY.1** Compare reasons why an individual should keep information private or make information public. ***The focus should be on potential effects, both positive and negative, for making information public.***	**4-6.CY.1** Explain why different types of information might need to be protected. ***The emphasis is on discussing different reasons that adversaries may want to obtain, compromise, or leverage different types of information. At this stage, students should be focused on general concepts.***	**7-8.CY.1** Determine the types of personal information and digital resources that an individual may have access to that needs to be protected ***The emphasis is on identifying personal information and devices that an individual may have access to and that adversaries may want to obtain or compromise. At this stage, students should focus on specific data and devices that they have access to.***	**9-12.CY.1** Determine the types of personal and organizational information and digital resources that an individual may have access to that needs to be protected. ***The emphasis is on identifying both personal information and organizational information, and devices and embedded systems, that an individual may have access to and that adversaries may want to compromise, obtain, or leverage.***

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What structures are in place to support the development of these skills in your state?

Policy Considerations for Integrating AI into Education

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Jeff Gagné, Policy Director

K-12 AI Policies | PSE AI Policies

Develop policies that support the following outcomes:

- Integrating AI into K-12 and postsecondary classrooms
- Equipping K-12 and postsecondary students with the skills and knowledge for AI-related career
- Adapting the education to workforce system to develop skills and seamless pathways that meet industry and state needs

A Request

- Policy Committee members asked SREB staff to produce a white paper examining Key AI education policies and report back.
- SREB staff have been examining current research, organization documents state documents.

State by State AI Guidance, Policy and Standards (Web Post)

SREB AI SIDE BY SIDE

State by State AI Guidance, Policy and Standards

Guidance | Policy | Research Centers

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This item appears in

SREB Commission on AI in Education

State	AI Guidance for Education
Alabama	No
Arkansas	The Arkansas Planning Guide for AI: A Framework for School Districts. The Arkansas guide is a modified companion to the AI Integration Framework for School Districts, originally created by Michigan Virtual.
Delaware	No
Florida	No
Georgia	No
Kentucky	Kentucky Department of Education Artificial Intelligence Guidance Brief
Louisiana	The Louisiana Department of Education's newly created AI task force is developing policy recommendations for K-12. On April 24th, the state Board of Regents voted to create its own committee to study the use of AI in higher education.
Maryland	No
Mississippi	Artificial Intelligence: Guidance for K-12 Classrooms This resource is designed to provide procedural guidance and instructional strategies to district leaders, school leaders, and classroom teachers on how to appropriately use artificial intelligence in schools. The guide starts with a definition of AI and explores its impact on the classroom. It also highlights how students, teachers, and administrators can leverage AI, and what factors should be taken into consideration when developing a policy for AI use.
North Carolina	The NC Department of Public Instruction's guidance document has been developed to help education leaders adapt and implement generative AI responsibly in their schools and infuse AI Literacy into all grade levels and curriculum areas.
Oklahoma	This guidance provides recommendations for Oklahoma school districts and is not law or regulation. It is intended to support districts as they explore the potential applications of AI in schools.

Summary Findings

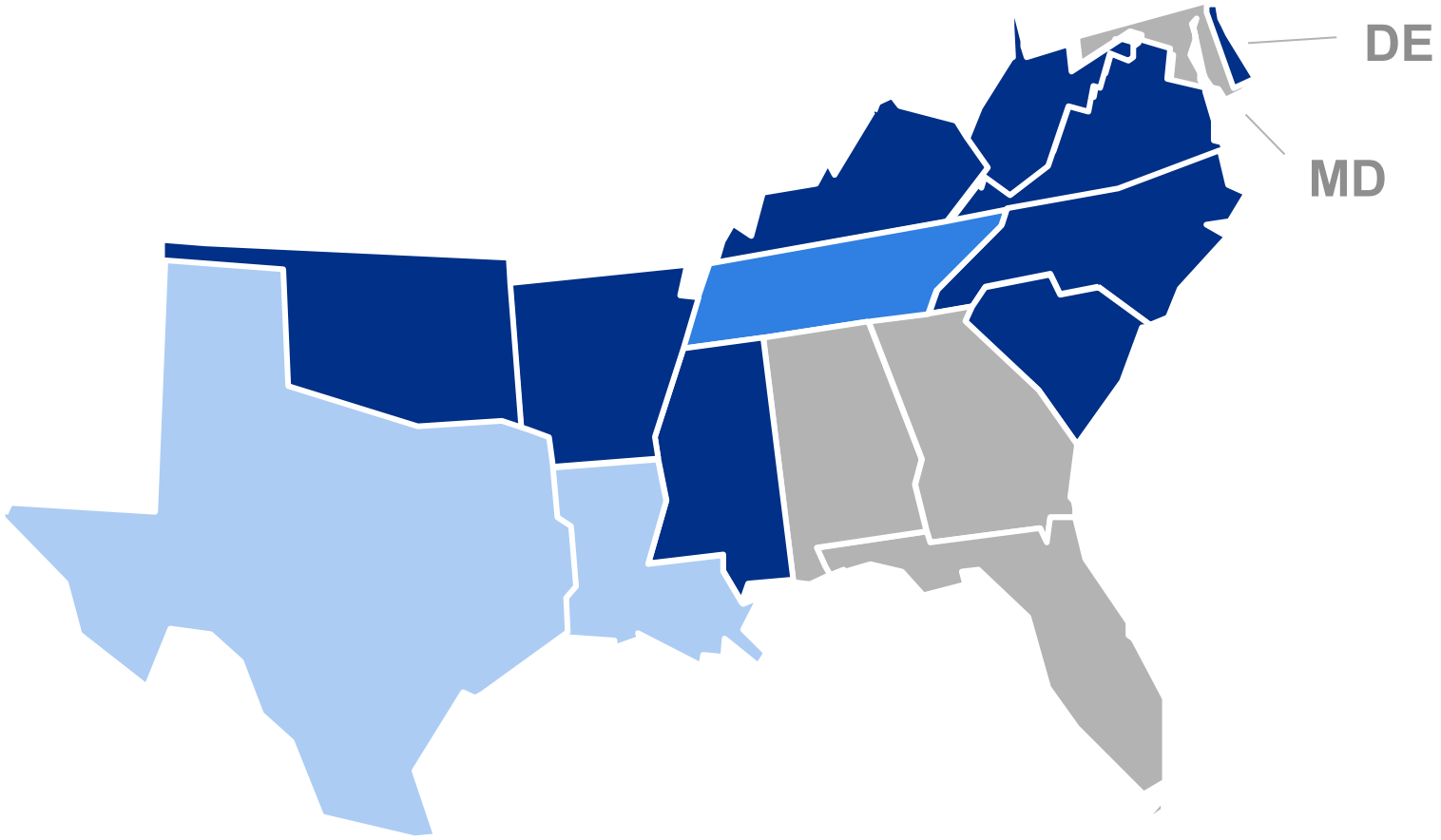
- Our ongoing review reflects several shared policy categories across all the documents we have examined to date.
- The category labels varied, but the specifics issues within each did not.
- We also discovered that many of the specifics in each category cut across other categories.

State Efforts

- As of June, nine states across the nation have AI Guidance for K-12 education.
  - Arkansas, California, Delaware, Kentucky, Mississippi, North Carolina, Oklahoma, Oregon, South Carolina Virginia and West Virginia
    - Tennessee now require the creation of state guidance.
    - Louisiana and Texas have established guidance task forces.

AI Education Guidance in SREB States

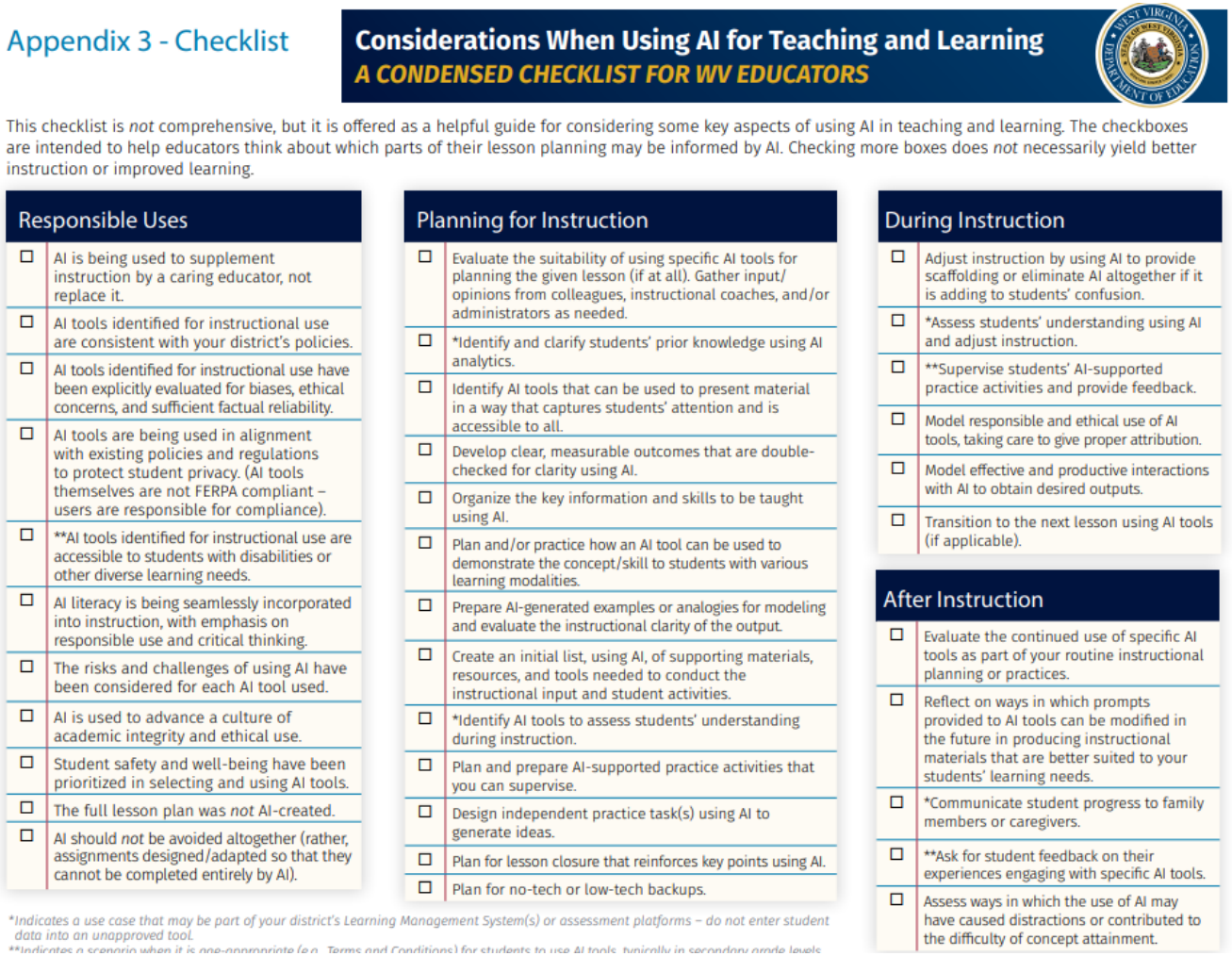
- Does not currently have guidance
- Guidance taskforce established
- Has law in place that requires guidance
- Has guidance



Virginia AI Guidance

Specific Roles of State Agencies:
VDOE and SCHEV shall meet monthly with the SOE team to identify implementation hurdles, best practices, and areas of support needed from the field by the agencies to support implementation, accelerate what's working well, and improve oversight of AI in education in the Commonwealth.

West Virginia AI Guidance



Appendix 3 - Checklist

Considerations When Using AI for Teaching and Learning

A CONDENSED CHECKLIST FOR WV EDUCATORS

This checklist is *not* comprehensive, but it is offered as a helpful guide for considering some key aspects of using AI in teaching and learning. The checkboxes are intended to help educators think about which parts of their lesson planning may be informed by AI. Checking more boxes does *not* necessarily yield better instruction or improved learning.

Responsible Uses

- ☐ AI is being used to supplement instruction by a caring educator, not replace it.
- ☐ AI tools identified for instructional use are consistent with your district's policies.
- ☐ AI tools identified for instructional use have been explicitly evaluated for biases, ethical concerns, and sufficient factual reliability.
- ☐ AI tools are being used in alignment with existing policies and regulations to protect student privacy. (AI tools themselves are not FERPA compliant – users are responsible for compliance).
- ☐ **AI tools identified for instructional use are accessible to students with disabilities or other diverse learning needs.
- ☐ AI literacy is being seamlessly incorporated into instruction, with emphasis on responsible use and critical thinking.
- ☐ The risks and challenges of using AI have been considered for each AI tool used.
- ☐ AI is used to advance a culture of academic integrity and ethical use.
- ☐ Student safety and well-being have been prioritized in selecting and using AI tools.
- ☐ The full lesson plan was *not* AI-created.
- ☐ AI should *not* be avoided altogether (rather, assignments designed/adapted so that they cannot be completed entirely by AI).

Planning for Instruction

- ☐ Evaluate the suitability of using specific AI tools for planning the given lesson (if at all). Gather input/opinions from colleagues, instructional coaches, and/or administrators as needed.
- ☐ *Identify and clarify students' prior knowledge using AI analytics.
- ☐ Identify AI tools that can be used to present material in a way that captures students' attention and is accessible to all.
- ☐ Develop clear, measurable outcomes that are double-checked for clarity using AI.
- ☐ Organize the key information and skills to be taught using AI.
- ☐ Plan and/or practice how an AI tool can be used to demonstrate the concept/skill to students with various learning modalities.
- ☐ Prepare AI-generated examples or analogies for modeling and evaluate the instructional clarity of the output.
- ☐ Create an initial list, using AI, of supporting materials, resources, and tools needed to conduct the instructional input and student activities.
- ☐ *Identify AI tools to assess students' understanding during instruction.
- ☐ Plan and prepare AI-supported practice activities that you can supervise.
- ☐ Design independent practice task(s) using AI to generate ideas.
- ☐ Plan for lesson closure that reinforces key points using AI.
- ☐ Plan for no-tech or low-tech backups.

During Instruction

- ☐ Adjust instruction by using AI to provide scaffolding or eliminate AI altogether if it is adding to students' confusion.
- ☐ *Assess students' understanding using AI and adjust instruction.
- ☐ **Supervise students' AI-supported practice activities and provide feedback.
- ☐ Model responsible and ethical use of AI tools, taking care to give proper attribution.
- ☐ Model effective and productive interactions with AI to obtain desired outputs.
- ☐ Transition to the next lesson using AI tools (if applicable).

After Instruction

- ☐ Evaluate the continued use of specific AI tools as part of your routine instructional planning or practices.
- ☐ Reflect on ways in which prompts provided to AI tools can be modified in the future in producing instructional materials that are better suited to your students' learning needs.
- ☐ *Communicate student progress to family members or caregivers.
- ☐ **Ask for student feedback on their experiences engaging with specific AI tools.
- ☐ Assess ways in which the use of AI may have caused distractions or contributed to the difficulty of concept attainment.

*Indicates a use case that may be part of your district's Learning Management System(s) or assessment platforms – do not enter student data into an unapproved tool.

**Indicates a scenario when it is age-appropriate (e.g., Terms and Conditions) for students to use AI tools, typically in secondary grade levels

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Policy Categories

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Purpose & Role

- What are your state's goals for education and the workforce?
- Do you know how will AI support those goals?
- State roles and responsibilities for AI in education?

People at the Center

- Integrating AI into education must ensure that people are at the center making the decisions.
- States need to ensure that human values and ethics are prioritized, so students learn to use the technology responsibly.
- Acceptable use policies should provide clear, ethical standards for all users of AI based on fairness, privacy and accountability.

Risk-Benefit

States must develop policies that help districts and institutions balance the benefits that come with AI with the inherent risks.

The risk cannot be eliminated but it can be mitigated.

- Ensure that data is collected, stored, and used in compliance with federal and state privacy laws.
- Require strong encryption and access controls over data.
- Require explicit consent from parents or guardians for collecting and using data related to minors.

Knowledge & Understanding

AI Literacy

- States need to ensure that students and teachers understand what AI is, how it works and its real-world applications.
- States should integrate AI concepts into all subjects and develop age-appropriate materials to teach AI basics across grades.
- Partner with business and industry to provide students with real-world AI exposure and mentorship opportunities.
- Ensure that K-12 AI Literacy knowledge and skills are aligned with postsecondary expectations.

Educator Support

- Provide training and resources to educators, so they can effectively teach and integrate AI concepts across grades and subject matter.
- Ensure that pre-service teacher preparation standards are updated to include AI literacy and pedagogy.
- Other supports might include AI Coaches, experts who can help teachers and schools integrate AI effectively.

Ethical Use

- States need to ensure equitable access to AI tools and resources (hardware, software, and internet access) across the state.
- Ensure that all students have the access and opportunity to become AI literate.
- States should ensure to provide resources and training for those schools serving underrepresented or disadvantaged communities.

Evaluate

States need feedback loops to inform policy and practice over time.

Determine the questions you need answered at the beginning.

- What are the challenges we need to address?
- What do teachers need to integrate AI successfully?
- What tweaks do we need to make to current policies to better support AI integration?
- Are their districts or institutions that need greater support to be successful? What kind of support?
- Identify success stories and share.

Mentimeter

What should be your state's first AI policy priority for education and AI?

What information do you need to make informed policy decisions regarding AI integration?

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Southern Regional Education Board

SREB.org

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