Sub-Matrix for 21st Century Teaching and Learning

The Sub-Matrix for 21st Century Teaching and Learning presents current evidence-informed shifts in pedagogical practice guiding effective educational design and instructional practices. These shifts open up new possibilities for teaching and learning for the purpose of improving outcomes for all students.

The Sub-Matrix describes the knowledge, expertise, and developmental progressions for educators needed to transform their classroom into a 21st century learning environment. 21st century teaching requires educators to be curious about the learner, engage in professional inquiry to enhance practice, collaborate with colleagues and learners, and exemplify 21st century skills.

Critical Component: 21st Century Instructional Practices

Practices engage students as partners in rigorous, inquiry-based learning experiences that are relevant, meaningful and authentic. Learning experiences demand high levels of meaning making, transfer, and ongoing impact to promote metacognition, and 21st century skills.

Gold Standard	Emerging Practice	Unacceptable Variation
Embedded Practices		
- All 21st Century Skills: Life and Career Skills, Learning and Innovation Skills, Information, Media and Technology Skills **Inquiry** - Project-Based Learning **Research and critical thinking skills** related to information, media, and technology	**4C's of 21st Century Skills**: Creativity, Critical Thinking, Communication, and Collaboration - Inquiry - Project-Based Learning **Research and technology skills**	- The teacher determines the learning design process - Daily instruction is the same for all students - Uniform instructional strategies are utilized
Processes		
Goal Management process is collaborative, with student, teacher, peers, specialists, and family as appropriate, with focus on the whole child: - Setting data-driven goals that include academic, behavioral, and **social/ emotional** components - Creating action plans that integrate **culturally** **responsive materials and content** - Monitoring progress toward these goals - Reflecting on outcomes	**Goal Management** process is primarily led by the teacher, who may collaborate with other educators, peers, specialists, and family in: - Setting goals - Making adjustments based on feedback - Selecting options for learning - Reflecting on results	**Goal setting**, monitoring progress and continual **feedback** are not used in the classroom.

Gold Standard	Emerging Practice	Unacceptable Variation
Processes		
Metacognition & Habits of Mind ● Learner knows factors that influence one's performance ● Strategies are explicitly taught and are applied and adapted as needed ● Learner can assess results and strategies used to achieve goals	**Metacognition** ● Learner is aware of factors that may influence one's performance ● Explicitly taught strategies become habits ● Reflection	**Metacognitive strategies** are either not known or not used.

Classroom Discourse
● **Centered/initiated/directed by students**
● Collaborative
● **Strategically responsive use of questioning**
   ○ **Types of questions**
   ○ **Higher order questioning**
● **Substantive discourse**
   ○ Considerable interactions about the ideas of a topic and not just the reporting of facts, definitions, or procedures
   ○ Sharing of ideas is grounded in evidence in discussions that are not scripted or controlled by the teacher
   ○ Dialogue builds coherently on participants' ideas to promote improved understanding of a theme or topic and other perspectives
   ○ Constructs viable arguments and critiques the reasoning of others
	Classroom Discourse
	● Teacher-initiated/student- and teacher-directed
	● **Scaffolded use of questioning**
	   ○ Types of questions
	   ○ **Higher order questioning**
	● **Discussion**
	   ○ Surface level discussion of a topic which includes the reporting of facts, definitions or procedures
	   ○ Sharing of ideas is grounded in evidence in discussions that are guided by the teacher
	   ○ Dialogue promotes improved understanding of a theme or topic
	   ○ Students construct arguments and respond to one another
		Classroom Discourse
		● Teacher-initiated/teacher-directed
		● **Questioning**
		   ○ Questioning is primarily call-and-response
		   ○ Questions are intended to lead student thinking to the teacher's ideal response
		● **Discussion**
		   ○ Few students do or can participate in discussions

Gold Standard	Emerging Practice	Unacceptable Variation
Processes		
Scaffolding of instruction is provided and differentiated for optimal student growth. ● **Gradual release of responsibility** ● **Zone of Proximal Development** ● **Tiered Instruction (MTSS/RtI)**	**Instructional strategies and resources are varied** and provide opportunities for improvement. ● **Gradual release of responsibility** ● **Zone of Proximal Development** ● **Tiered Instruction (MTSS/RtI)**	**Uniform strategies** and resources are used for all students. Interactions between teacher and students consist of: ● A **lecture** with little deviation from preplanned body of information and set of questions ● Questioning relies on call-and-response format ● Worksheets
Teachers' roles in the classroom: (mentor in the center) ● **Coach** ● **Facilitator** ● **Direct instruction**	Teachers' roles in the classroom: (guide on the side) ● **Coach** ● **Facilitator** ● **Direct instruction**	Teachers' roles in the classroom: (sage on the stage): ● **Direct instruction**
Teachers' roles out of the classroom: ● **Designer** for student learning ● Problem solver seeking resources and solutions to support effective learning ● Reflective of efficacy of learning	Teachers' roles out of the classroom: ● Planner of instruction ● Seeks resources to solve learning challenges	Teachers' roles out of the classroom: ● Prepares lessons and presentations
Multiple types of assessment are used, including student- designed demonstrations of learning (**assessment of uncommon learning),** to provide specific, timely, and ongoing **feedback** to identify next steps in the learning process.	**Multiple types of assessment** are used to provide specific, timely, and ongoing **feedback** to identify next steps in the learning process.	**Types of assessments** used are limited/teachers rely exclusively on summative assessments found within published curriculum materials.

Critical Component: 21st Century Curriculum
Curriculum integrates 21st century skills across all content areas, promoting interdisciplinary themes. Enables innovative learning methods that integrate the use of supportive technologies, inquiry, problem- and project-based approaches, and higher order thinking.

Gold Standard	Emerging Practice	Unacceptable Variation
Embedded Practices		
Curriculum is driven by national standards, organized in a sequence of **performance outcomes**, and implemented through a set of instructional practices organized in a pedagogical framework.	Curriculum is based on a scope and sequence of **performance outcomes** implemented through thematic/content units and templates.	Curriculum is based on a scope and sequence of standards implemented either through scripted programs and pacing guides or disconnected units.
Processes		
Curriculum prioritizes all **21st Century Skills: Life and Career Skills, Learning and Innovation Skills, and Information, Media and Technology Skills.**	**Curriculum** integrates **4C's of 21st Century Skills: communication, creativity, collaboration, critical thinking.**	**Curriculum** occasionally includes **4 C's of 21st Century Skills: communication, creativity, collaboration, and critical thinking.**
Design: ● Flexible and responsive to students (See Section A - Knowing the Learner) ● Incorporate **2 1st Century themes** ● **Essential questions** guide the learning ● Integrates **culturally responsive materials and content** ● **Encourage, value, and promote student diversity** ● Require application of 21st century skills ● Integrates community resources ● Builds a strong base of knowledge through incorporating content rich texts ● Strategically integrates technology for deeper learning ● The teacher can access and evaluate resources for classroom use based on Districts 145 best practices ● The teacher can access resources that are available from C&I for classroom instruction, intervention, and enrichment	**Design:** ● Thematic/content units guide curriculum implementation ● Standards and skills are clustered into performance outcomes ● A unit essential question is referenced ● References **culturally-related topics** ● Recognizes **student diversity** ● May include application of some 21st century skills ● Access community resources beyond school walls ● Uses texts to build knowledge base ● Uses technology to supplement learning ● The teacher can access resources for classroom use ● The teacher can access resources that are available from C&I for classroom instruction, intervention,	**Design:** ● Standards are taught and tracked discretely ● Focuses on level 1 and 2 of **Webb's Depth of Knowledge** ● Unit questions, if any, have predetermined answers/outcomes ● Limited opportunities to use 21st century skills ● Technology is used for skill and drill ● Teacher uses low-level content resources from non-researched sources

Gold Standard	Emerging Practice	Unacceptable Variation
Embedded Practices		
Authenticity: ● Student-negotiated and student-directed ● **Inquiry/Problem/Project-Based Learning** ● Interdisciplinary ● Taking action on personally meaningful issues ● Life and career skills ● Addresses citizenship both nationally and globally	**Authenticity:** ● Teacher-initiated and teacher- or student-directed ● **Project-Based Learning** ● Interdisciplinary ● Connected to real-world issues/topics ● Life and career skills	**Authenticity:** ● Teacher-initiated and teacher-directed ● Standards are taught and tracked discreetly
Assessment: ● **Formative and summative processes** are an integral part of the continuous learning process ● Provides common assessments and scoring guides for a grade level/content area. ● Provides for **authentic assessments** designed with student input (voice and choice) ● Student-designed demonstrations of learning are assessed through common scoring guides ● **Assessment of uncommon learning**	**Assessment:** ● **Formative and summative assessments** are embedded throughout ● Assessment is designed to address multiple curricular standards ● Provides common assessments and scoring guides for a grade level/content area. ● Assessments offer students options to demonstrate learning and/or understanding	**Assessment:** ● **Summative assessments** are used to report achievement ● Standards are assessed discreetly ● Little to no flexibility or variety with assessment practices

Additional Resources		
Below are additional references related to 21st Century Teaching and Learning		
[Freeport School District 145's 21st Century Teaching and Learning Webpage](#)	[Understanding By Design](#)	[Overview of Understanding by Design](#)
[Teach Thought: We Grow Teachers](#)	[Buck Institute for Education's PBL Works](#)	[Framework for 21st Century Learning](#)
[Defined STEM](#)	[The Myth of Average: Todd Rose](#)	[Deeper Learning](#)
[Assessment Literacy Feedback](#)	[Rubric for Becoming an Inquiry Based Teacher](#)	[ISTE Standards for Educators](#)
[A.J. Juliani: Inquiry and Genius Hour](#)	[Implementing Genius Hour in Your Classroom](#)	[Chris Walocha - Genius Hour Presentation](#)
[Habits of Mind](#)	[How People Learn: Brain, Mind, Experience and School](#)	[Preparing for Uncommon Learning](#)
[TEAL Center Fact Sheet No. 6: Student-Centered Learning](#)	[Tools for Teaching: Ditching the Deficit Model](#)	[School Culture and Climate](#)