Matrix for 21st Century Teaching and Learning

The 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 in the 21st Century. Critical components that contribute to effective implementation are Knowing the Learner, the Learning Environment, the Curriculum, Instructional Practices, Learner Agency and Assessment.

This Matrix describes the knowledge, expertise and developmental progressions for educators needed to transform their classroom into a Student Centered Learning environment. Twenty-First Century teaching requires educators to develop dispositions for Student Centered Learning. These dispositions compel 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 that Contributes to Effective Implementation	Gold Standard	Emerging Practice	Unacceptable Variation
A. Knowing the Learner Knowing the learner informs the design of effective instruction and necessary adjustments based on individual needs resulting in learners who persevere and complete challenging work.	1.The teacher **purposefully acquires** and uses knowledge of the **diverse abilities, genders, families, and cultures** of their students to increase **student engagement,** manage students' **ZPD** and help students understand themselves as learners. ● connecting with families and building **cultural competence** ● build on strengths ● use of inventories ie.; **styles/multiple intelligences** ● build trust and respect ● **scaffold instruction** ● provide tiered support ● connect with passions ● **Habits of mind** 2. **Social Emotional Learning** is taught, coached, and integrated into all educational interactions, including academics, to support student perseverance and accomplishment ● **goal setting** ● **21st Century Skills**	1. The teacher acquires and uses knowledge of the **diverse abilities, genders, families, and cultures** of their students to make informed decisions about instruction and increase **student engagement.** ● connecting with families ● build on strengths ● use of inventories such as **learning styles/multiple intelligences** ● build respect ● scaffold instruction 2. **Social Emotional Learning** is taught and referenced. ● **goal setting** ● **21st Century Skills**	1. The teacher acquires and uses knowledge of students' age, gender, ability, and background to determine learning expectations. ● communication with families only during parent teacher conferences 2. **Social Emotional Learning** is taught: daily planning and **delivery** of **District SEL Curriculum** ● Skills are taught but not revisited or applied in authentic situations

● team building	● team building	
● explicit instruction	● explicit instruction	
● conferencing	● conferencing	
● skills and strategies are embedded throughout the year		
3. Intentionally developed **collaborative learning culture**	3. The teacher uses student feedback regarding decisions and problem solving	3. Teacher makes choices for students based on decisions students make.
● **Classroom meetings**	○ **voice and choice**	
○ students create, share, and implement ideas for improvement	○ opportunities for affiliation	
○ may have students in specific leadership roles and/or protocols	○ students share ideas for action	
○ reflection for improvement is an integral part of the daily process	○ opportunities to reflect on thinking	
○ advocating for positive change in a democratic way		
○ students help set quality standards		
4.**Teacher**, **student, and parent/guardian** are partners in:	4.The **teacher** takes responsibility for:	4.Goal setting, monitoring progress and continual feedback are not used in the classroom.
● **goal setting**	● **goal setting**	● Only one type of assessment is used to identify the learner's strengths and challenges.
● **monitoring progress**	● **monitoring progress**	
● selecting from **multiple forms of assessment** to identify and monitor the learner's strengths and challenges.	● using **multiple forms of assessment** to identify and monitor the learner's strengths and challenges.	
● **reflection** /**feedback**	● **reflection** /**feedback**	
● adjustment of instruction for optimal student growth.	● adjustment of instruction for optimal student growth.	
● identifying and accessing appropriate resources.		
● collaborating and communicating with all supporting professionals.		

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B. Classroom Learning Environment The classroom learning environment creates the context for emotional and academic safety that promotes student ownership of learning, student engagement, growth mindset, confidence, and the acquisition of 21st Century Skills.	**Culture of Curiosity & Collaboration** 1.Relationships in the classroom between teacher and students and among students promote: ● collaboration/cooperative learning ● meaningful **academic conversations** ● **engaged,** on-task students ● **respectful interactions that are practiced and reflected on** ● a **culture of learning** 2. **Teachers and students** create an **emotionally and intellectually safe** classroom. ● **Students self-monitor with teacher guidance.** ● Teacher and students develop norms, **shared vision**, and procedures together and all stakeholders monitor for accountability. ● Teacher models behavior expected of students. ● **Students feel safe asking for help** ● **Making mistakes** is a part of learning. ● **Academic risk taking** is the norm.	**Culture of Cooperation** 1.Relationships in the classroom between teacher and students promote: ● working together ● **academic conversations** ● on-task students ● **respectful interactions** **2 The teacher** provides an **emotionally and intellectually safe** classroom. ● **Teacher monitors compliance.** ● The teacher and students develop the norms, **shared vision**, and procedures and the teacher monitors for accountability. ● Teacher models behavior expected of students ● **Students feel safe asking for help** ● **Making mistakes** is a part of learning. ● **Academic risk taking** is positively encouraged.	**Culture of Compliance** 1.Positive interactions are limited between teacher and students and among students. ● students primarily work independently ● opportunities to participate in **academic conversations** are limited 2. The classroom is unsafe emotionally and/or intellectually. ● Norms are not developed or are developed but not referenced or used in authentic situations

	3.Space is used flexibly and responsively to create a safe, respectful and **engaging** environment. ● Students contribute to the use or adaptation of the physical environment to advance learning. ● Resources are **differentiated** ● Resources are organized and accessible to students 4.Assessment takes place in various settings and times throughout the classroom. ● **ranging from formal to informal** ● students are assessed in their most productive context	3.Space is used flexibly to maintain a safe, respectful and **engaging** environment. ● The teacher adapts the physical environment to advance learning. ● Resources are **differentiated** ● Resources are organized and accessible by students. 4.Assessment takes place in various settings and times throughout the classroom. ● **ranging from formal to informal**	3. One uniform arrangement of classroom space serves all classroom activities. ● Resources are stored and accessible to teacher. ● Resources are common to all. 4. Assessment routine remains the same regardless of student needs. ● primarily formal on a schedule

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C. 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 skills.	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[1]. 1. Curriculum prioritizes all **Twenty-First Century Skills: Life and Career Skills, Learning and Innovation Skills, Information, Media and Technology Skills.** 2. Design ● flexible and responsive to students (See Section A - Knowing the Learner) ● incorporate **21st 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	Curriculum is based on a scope and sequence of **performance outcomes** implemented through thematic/content units and templates. 1. Curriculum integrates **4C's of Twenty-First Century Skills for Learning and Innovation: communication, creativity, collaboration, critical thinking.** 2. 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,	Curriculum is based on a scope and sequence of standards implemented either through scripted programs and pacing guides **or** disconnected units. 1. Curriculum occasionally includes **4C's of Twenty-First Century Skills: communication, creativity, collaboration, critical thinking.** 2. Design ● standards are taught and tracked discreetly ● focuses on level 1 and 2 DOK ● unit questions, if any, have predetermined answers/outcomes ● opportunities are available to use 21st century skills ● technology is used for skill and drill ● teacher uses low level content resources from non-researched sources

[1]

3.Authenticity ● student negotiated and student directed ● **inquiry/problem based/project based** ● interdisciplinary ● taking action on personally meaningful issues ● life and career skills ● addresses citizenship both nationally and globally	3.Authenticity ● teacher initiated and teacher/student directed ● **project based** ● interdisciplinary ● connected to real world issues/topics ● life and career skills	3. Authenticity ● teacher initiated and teacher directed ● standards are taught and tracked discreetly
4.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** i.e. Research, Reflection, Product, Presentation of Learning)	4.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 student learning	4.Assessment ● **summative assessments** are used to report achievement ● standards are assessed discreetly ● little to no flexibility or variety with assessment practices

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D. Student-Centered Instructional Practices
 	
Practices engage students as partners in rigorous, inquiry based learning experiences that are relevant, meaningful and authentic and demand high levels of meaning making, transfer and impact to promote metacognition and 21st Century Skills.
	Practices:
	● All 21 Century Skills: Life and Career Skills, Learning and Innovation Skills, Information, Media and Technology Skills.
	● **inquiry**
	
	● project based learning
	
	● **research- critical thinking skills** related to information, media, and technology
	
	through...
	
	1. Goal management process is collaborative, with student, teacher, peers, specialists and family as appropriate, with focus on 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, and
	  ● reflecting on outcomes
	
	2.**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
	
	3. **Classroom discourse**
	● **student initiated/student directed**
	● collaborative
		Practices:
		● **4C's of 21st Century Skills** (creativity, critical thinking, communication and collaboration)
		● inquiry
		● project based learning
		
		● **research and technology skills**
		
		through...
		
		1. 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
		
		2.**Metacognition**
		● learner is aware of factors that may influence one's performance
		● explicitly taught strategies become a habit
		● reflection
		
		3. **Classroom discourse**
		● teacher initiated/student and teacher directed
			Practices:
			● the teacher determines the learning design process
			● daily instruction is the same for all students
			● uniform instructional strategies are utilized
			
			through...
			
			1. Goal setting, monitoring progress and continual **feedback** are not used in the classroom.
			
			2. Metacognitive strategies are either not known or not used.
			
			3. **Classroom discourse**
			● teacher initiated/teacher directed

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 4. **Scaffolding** of instruction is provided and differentiated for optimal student growth. ● **gradual release** ● **ZPD** ● **RtI Tiers** 5. Teachers' roles in the classroom: (mentor in the center) ● **coach** ● **facilitator** ● **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 6. 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.	**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 ● constructs arguments and responds to others 4. Instructional strategies and resources are varied and provide opportunities for improvement. ● **gradual release** ● **ZPD** ● **RtI Tiers** 5. Teachers' roles in the classroom: (guide on the side) ● **coach** ● **facilitator** ● **direct instruction** Teachers' roles out of the classroom: ● planner of instruction ● seeks resources to solve learning challenges	**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 4.Uniform strategies and resources are used for all students. interactions between teacher and students consisting of: ● a **lecture** with little deviation from preplanned body of information and set of questions ● questioning that is call and response ● worksheets 5. Teachers' roles in the classroom (sage on the stage): ● **direct instruction** --- Teachers' roles out of the classroom: ● prepares lessons and presentations 6. Types of assessments used are limited

		6. Multiple types of assessment are used to provide specific, timely and ongoing **feedback** to identify next steps in the learning process.	
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E. Learner Agency **(P21: Life & Career skills)** Developing learner agency builds students' growth mindsets, self-efficacy and sense of belonging, resulting in lifelong learners who are prepared with life and career skills and are able to transform their learning into meaningful actions.	**1.Ownership of Learning** Student Initiated/Student Directed **Students take ownership through...** ● **Habits of Mind** ● problem solving to persevere in meeting quality targets ● monitoring progress through feedback, self assessment and **metacognitive strategies** ● partnering with peers, educators and other adults ● setting goals and identifying strategies, tasks, benchmarks, quality standards, obstacles and timelines for **goal accomplishment** ● researching for various purposes ● **participating in relevant, authentic learning experiences** ● making contributions beyond the classroom ...thereby developing proficiency of 21st Century Skills 2. **Learner Agency** and assessment ● involve students in defining the assessment ● students demonstrate learning through a variety of methods	**1.Ownership of Learning** Teacher Initiated/Student and Teacher Directed Teachers develop students' capacity for ownership by… ● asking students for input ● setting goals ● reporting back to students on monitoring progress ● providing **feedback** ● planning learning experiences that provide options ● problem solving with students to persevere in meeting quality targets ...thereby developing a capacity for21st Century Skills 2. **Learner Agency** and assessment ● Teacher provides choices	**1.Ownership of Learning** Teacher Initiated/Teacher Directed Teacher expects student ownership as evidenced by.... ● planning alone ● identifying learning goals and learning strategies for students ● providing summative feedback only 2. **Learner Agency** and assessment - ● Student has to deliver what teacher wants

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F. Assessment
Multiple forms of academic performance data ranging from ongoing observation of the learner to traditional assessment to completion of project/inquiry based learning are used to understand and assess the learner's strengths and needs, and to plan for further assistance.
	Allow students to partner with teachers so students are part of the learning process in the "readiness for" and "design of" assessment(s).
	
	1. **Continuous Growth Cycle**
	(assess - plan- monitor- **feedback** - assess) -multiple opportunities to assess and re-assess using different kinds of assessments
	● Met or not yet-how are you helping the learner reach the goals
	● Useful **feedback** is embedded into everyday learning
	● mistakes are considered integral to the learning process
	● growth mindset is coached
	
	Summative assessments -
	● incorporate broader use of performance-based measures that focus on higher-order thinking and measure **21st Century Skills** and habits
	
	2. **Continuous assessment-spiraling**
	● **of** learning **(summative)**
	● **for** learning (formative, **feedback**)
	● **as** learning (reflection, self-feedback; metacognition)
	
	3. Focus on learner as a whole
	● balance of
	   ○ qualitative and quantitative
	   ○ formal to informal
	   ○ common to uncommon
	● **portfolios** of student work demonstrate mastery of 21st century skills and application of learning
		Teacher provides different kinds of assessments.
		
		1. **Use of formative assessment**
		● **Feedback** provides guidance for improvement
		● Effort and persistence are encouraged
		● Mistakes are analyzed for the purpose of improvement
		
		Summative Assessments
		● Standards are clustered into performance outcomes requiring application
		
		2. **LImited assessment opportunities**
		● of learning (summative)
		● for learning (formative/**feedback**)
		
		3. Focus on what learner knows and can do
		● balanced between
		   ○ qualitative and quantitative
		   ○ formal to informal
		   ○ **DOK levels**
			Teacher determines readiness and format of assessments.
			
			1. Summative assessment only
			● feedback limited to only a grade
			● assessment of standards in isolation
			● mistakes are discouraged
			
			2 Assessment is time based and linear/sequential.
			● No opportunities for redo or to revisit.
			● lack of conceptual development
			
			3. Focus on what learner knows.
			
			● Assessment is quantitative and formal
			● Primarily **DOK** levels 1 & 2

	4. Student learning expectations are based on **Learning progressions** of performance outcomes.	4. Student learning expectations are based on performance outcomes.	4. Student learning expectations are based on scope and sequence/grade level objectives.

Resources

Commonalities Among the Practices in Science, Mathematics and English Language Arts - based on the work by Tina Chuek ell.stanford.edu

Framework for 21st Century Learning from P21 www.p21.org/our-work/p21-framework

Assessment: A 21st Century Skills Implementation Guide, produced by Partnership for 21st Century Skills www.p21.org/storage/documents/p21-stateimp_assessment.pdf

Using Assessment to Create Student Centered Learning http://www.edutopia.org/blog/assessment-create-student-centered-learning-andrew-

Understanding By Design – Wiggins & McTighe, 2005 (Diverse Evidence of Assessment)
Project Foundry: What is project based learning? http://www.projectfoundry.com/what-is-project-based-learning/

How People Learn: Brain, Mind, Experience and School (2000) http://www.nap.edu/read/9853/chapter/1

Austin's Butterfly www.vimeo.com/38247060

Inquiry based learning, project based learning (Buck Institute, Expeditionary Learning, UbD, Deeper Learning)

Extended Learning Opportunities www.beyondclassroom.org/assess

     assessment literacy

     feedbackhttp://beyondclassroom.org/assess

http://authenticlearningineducation.blogspot.com/2009/03/five-standards-of-authentic-instruction.html

 http://blogs.edweek.org/edweek/finding_common_ground/2015/12/are_schools_prepared_for_uncommon_learning.html

http://www.corwin.com/books/Book244123#tabview=title

http://www.ascd.org/research-a-topic/school-culture-and-climate-resources.aspx

https://www.youtube.com/watch?v=4eBmyttcfU4

https://teal.ed.gov/tealGuide/studentcentered

http://www.edutopia.org/blog/teaching-tool-ditching-deficit-model-rebecca-alber

http://www.iste.org/standards/iste-standards

http://ajjuliani.com/research/