

# Characteristics of 21<sup>st</sup> Century Classrooms

Four C's	Three R's	Use of Technology	Student Centered	Student Engagement
Best Practices	Learning Environment	Major Shifts	Standards of Math Practice	7 Essential Life Skills

21 <sup>st</sup> Century Skills	Description of Practice
<b>Collaboration</b>	Work together to reach a goal – collectively put talent, expertise, and minds to work. Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal
<b>Critical Thinking</b>	Look at problems in a new way, linking learning across subjects & disciplines; use various types of reasoning; analyze, make judgments and solve problems
<b>Creativity</b>	Demonstrate originality and inventiveness in work; be open to new perspectives; use a wide range of creation techniques; act on creative ideas; elaborate and refine
<b>Communication</b>	Articulate thoughts and ideas effectively using oral, written and non-verbal communication in a variety of contexts; listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
<b>Rigor</b>	Teach students to think and reason critically, solve problems, analyze, evaluate, critique, synthesize, communicate and create new knowledge. Depth of Knowledge Levels include: <ul style="list-style-type: none"> <li>• DOK 1: Recall and Reproduction</li> <li>• DOK 2: Skills and Concepts</li> <li>• DOK 3: Strategic Thinking and Reasoning</li> <li>• DOK 4: Extended Thinking</li> </ul>
<b>Relationships</b>	Students have a healthy relationship with the teacher and have confidence the teacher cares about them personally and believes in their ability to learn
<b>Relevance</b>	Students engage in real-life experiences and understand how their learning is relevant to college and career readiness their lives and their surroundings
<b>Use of Technology</b>	Both teachers and students use technology to enhance and support learning, access and evaluate information, use and manage information, research, organize, evaluate and communicate information. They apply a fundamental understanding of the ethical/legal issues surrounding the access and use of technology.
<b>Student-Centered Classroom</b>	Students take responsibility for their learning and construct their own knowledge while the teacher serves as a guide and facilitator; curriculum and assessment is centered on meaningful performances in real-world situations.

<b>Student Engagement</b>	Students are actively engaged in meaningful tasks that align with the rigor of the learning outcome/standard. All students have opportunities to interact simultaneously in the lesson questions and activities of collaboration, critical thinking, communication and creativity.
<b>Research–Based Best Practices</b>	<b>Research-based instructional practices correlated to increased student achievement in the classroom.</b>
<b>Findings of John Hattie</b>	A synthesis of over 800 meta-analysis and 50,000 studies. John Hattie and his team found the following to have an effect size of .40 or higher. (2009)
<b>Self-reported grades/student expectations</b>	Refers to students’ expectations for and beliefs in themselves. Making the learning intentions and success criteria transparent, having high, but appropriate, expectations, and providing feedback at the appropriate levels.
<b>Provide formative feedback to teachers</b>	Teachers attend to what is happening for each student in their classroom as a result of their instruction—when teachers ask, “How am I doing?” Highest effects when teachers seek evidence on where students are not doing well.
<b>Classroom Discussion</b>	Peer or teacher led focused discussion that gives students the opportunity to hold the floor for extended periods of time. Students are prompted to discuss texts or projects through open-ended or authentic questions, which give rise to longer incidences of student talk and greater elaboration.
<b>Provide Feedback</b>	Feedback is about providing information about the task performance. Feedback is more effective when it provides information on correct rather than incorrect responses and when it builds on changes from previous trials.
<b>Reciprocal Teaching</b>	Teachers enable students to learn and use strategies such as summarizing, questioning, clarifying, and predicting. Students take turns as teacher and lead dialogue to bring meaning to written word with assistance to learn to monitor their own learning and thinking.
<b>Teacher Student Relationships</b>	Building relationships implies agency, efficacy, respect by the teacher for what the student brings to the class (from home, culture, and peers) and recognition of the life of the student.
<b>Meta-Cognitive Strategies</b>	Refers to those “thinking about thinking” strategies: planning how to approach a learning task, evaluating progress, and monitoring comprehension. Self-questioning is another meta-cognitive strategy.
<b>Vocabulary Programs</b>	Provide both definitional and contextual information, involving students in deeper processing, and giving students more than 1 or 2 exposures to the words to be learned.
<b>Concept Mapping</b>	Graphical representations of content to be learned. Importance is in its emphasis on summarizing main ideas. Assists in synthesizing and identifying major ideas, themes, and interrelationships.
<b>Direct Instruction</b>	Refers to 7 major steps: 1. Teacher specifies learning outcomes/intentions; 2. Teacher knows and communicates success criteria; 3. Builds commitment and engagement in learning task (hook); 4. Input, model, check for understanding; 5. Guided Practice; 6. Closure; 7. Independent practice.

<b>Cooperative vs. individualistic learning</b>	Most powerful when students have acquired sufficient background knowledge to be involved in discussion and learning w/peers. Most useful when learning concepts, verbal problem-solving, spatial problem-solving, retention and memory. Effects increase with age.
<b>Providing worked examples</b>	Consists of a problem statement and the appropriate steps to a solution. Three steps: introductory phase, acquisition/training phase, test phase (assess learning). Reduces cognitive load for students such that they concentrate on the processes that lead to the correct answer and not just providing an answer.
<b>Phonics Instruction</b>	Teaching students the alphabetic code. Designed for beginners in early elementary.
<b>Writing Programs</b>	Teach students strategies for planning, revising, and editing compositions. Writing programs are effective when they are more informational, personal, imaginative, or attend to meta-cognitive reflections of the task.
<b>Findings by McREL Robert Marzano-</b>	A summary of findings of over 100 studies of research based instructional strategies that strongly affect student achievement. (McREL 2007)
<b>Similarities and Differences</b>	Students are given opportunities to compare, classify, create analogies and create metaphors. This allows students to learn content at a deeper level. Students are required to activate prior knowledge, make new connections, construct meaning and talk about their reasoning.
<b>Summarizing/Note Taking</b>	Students analyze a subject to expose what's essential and then put it in their own words. To effectively keep, delete, and substitute information, students must analyze the information at a fairly deep level.
<b>Non-linguistic representations</b>	Students use mental models and physical movement to represent information.
<b>Generating and testing hypothesis</b>	Students are able to predict what would happen if an aspect of a familiar system were changed. They are able to explain their hypothesis and conclusions.
<b>Skillful use of cues and/or questions</b>	Students use prior knowledge to explain a topic. Teachers skillfully use "wait time" after posing a question to increase depth and complexity of answers.
<b>Instruction modified based on feedback</b>	Teachers ensure that feedback is corrective in nature; students know how they did in relation to specific levels of knowledge. Rubrics provide specific feedback.
<b>Academic vocabulary taught</b>	Teachers provide students with the academic background knowledge to understand the content they will encounter with direct instruction in these terms. Students speak 50% of their class time and are required to respond in complete sentences.
<b>Objectives are clear</b>	When asked, students can explain the learning goal for the lesson and explain how their activities are related to the learning goal.
<b>Effective Praise</b>	Effort and recognition speak to the attitudes and beliefs of students. Teachers show the connection between effort and achievement.

<b>Learning Environment</b>	<b>The learning environment is reflective of, but not limited to the following:</b>
<b>Positive student and teacher interaction</b>	Teachers call student by name, move in close proximity to the student when talking to them, and provide genuine support and specific feedback. Rapport and humor are evident.
<b>Learning by doing</b>	Students discover new information based on prior knowledge, natural curiosity, and the setting of goals. They are self-directed, utilize time wisely and work independently.
<b>Accessing/Using information</b>	Students are able to access information efficiently (time) and effectively (sources) and evaluate information critically and competently.
<b>Flexible grouping</b>	Teachers provide opportunities for students to work in groups based on interest, ability, and individual needs; there is respect and appreciation for team diversity.
<b>Interdisciplinary</b>	Teachers use methodology and language from more than one discipline to provide opportunities for students to participate in project-based activities, examine a central theme, topic, issue or problem.
<b>Multiple sources of information</b>	The learning is not solely based on one text; multiple sources are used to access and analyze information.
<b>Authentic Projects</b>	Students are involved in projects that do one of more of the following: 1) Meets a real need in the world beyond the classroom, or the products that students create are used by real people. 2) Focuses on a problem, issue or topic that is relevant to students' lives. 3) Sets up a scenario or simulation that is realistic, even if it is fictitious. 4) Involves tools, tasks or processes used by adults in real settings.
<b>COMMON CORE SHIFTS</b>	<b>These are the major instructional shifts from current practice to the implementation of the Common Core State Standards.</b>
<b>ELA</b>	
Building knowledge through content-rich nonfiction and informational texts.	Students read a balance of information and literary texts. Informational reading primarily includes content-rich non-fiction in history/social studies, science and the arts. Students build knowledge about the world (domains/content areas) through TEXT rather than the teacher or activities.
Reading, writing, and speaking grounded in evidence from text.	Writing emphasizes use of evidence from sources to inform or make an argument. Students engage in rich and rigorous based conversations about text.
Regular practice with complex text and its academic vocabulary.	Students read the central, grade appropriate text around which instruction is centered. Teachers are patient, create more time and space and support in the curriculum for close reading. Students constantly build the transferable vocabulary to access complex text. They engage in content with increasingly complex text.

<b>MATH</b>	
Focus	Teachers narrow and deepen the scope of math and focus deeply on the concepts prioritized by the standards. Two to four critical areas are focused on deeply in each grade level.
Coherence	Teachers connect the learning within and cross grade levels so student can build on the foundation of prior learning In math.
Rigor	Fluency with arithmetic, application of knowledge to real world situations, and deep understanding of mathematical concepts.
<b>Standards of Mathematical Practice</b>	<p>Describes a variety of expertise that mathematics educators at all levels should seek to develop in their students.</p> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively.</li> <li>3. Construct viable arguments and critique the reasoning of others.</li> <li>4. Model with mathematics.</li> <li>5. Use appropriate tools strategically.</li> <li>6. Attend to precision.</li> <li>7. Look for and make use of structure.</li> <li>8. Look for and express regularity in repeated reasoning.</li> </ol>

<b>7 Essential Life Skills</b>		
<b>Daniel Pink</b>	<b>Tony Wagner</b>	<b>Howard Gardner</b>
Communication	Effective Oral and Written Communication	
Critical Thinking/Problem Solving	Critical Thinking and Problem Solving	Synthesizing Mind
Creativity	Curiosity and Imagination	Creative Mind
Positive Relationships (Ethical, Empathetic)	Collaboration Across Networks and Leading by Influence	Ethical Mind
Information Technology	Assessing and Analyzing Information	Disciplined Mind
Flexibility, Adaptability	Agility and Adaptability	
Personal Skills	Initiative and Entrepreneurialism	Respectful Mind

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