

Content Connections

CTE: STEM, Arts, Design & Information Technology



The past year several years, teachers came together and identified effective practices that align with Boulder Valley's Educator Effectiveness Standards and Elements. These content connections were designed for specific courses and or grade levels. The identified connections are not evaluation criteria, but rather were created to provide support and examples of effective classroom instruction.

Standard I: Teachers demonstrate mastery and pedagogical expertise in the content they teach

What does "Effective" look like in the classroom?	
Element a – Alignment	
Connect Learning Environment	<ul style="list-style-type: none"> ● Connect student interests to area of study ● Access prior knowledge ● Connections to career and college readiness
Respond to Student Misconceptions	<ul style="list-style-type: none"> ● Using project examples to projects-based learning (when applicable) ● Opportunities for re-teaching and re-taking assessments ● Working with students one-on-one or small groups ● Use examples related to questions
Collaborate Vertically and Horizontally	<ul style="list-style-type: none"> ● Actively attend professional development at school/district ● Work and meet with both middle/high (when applicable) ● Cross-curricular planning/connections (when applicable)
Prepare Student for Next Level	<ul style="list-style-type: none"> ● Create opportunities to learn about careers related to content area ● Create opportunities to learn how content area can be used or combined in other careers ● Create opportunities towards post-secondary education related to content area (Grades 9-12) ● Create opportunities for students to be exposed to high school level CTE programs (Grades 6-8)
Element b – Literacy	
Provide Literacy Instruction	<ul style="list-style-type: none"> ● Students are able to explain their learning in multiple ways while using multiple sources of information ● Discuss, write, read, and evaluate STEAM ideas in the classroom, by responding to questions, asking questions, summarizing, and analyzing content ● Students have opportunities to write, discuss, read, and research applicable content ● Students learn how to identify reliable and valid resources ● ISTE Standard 3: Students apply digital tools to gather, evaluate, and use information. <ol style="list-style-type: none"> a. Plan strategies to guide inquiry

	<ul style="list-style-type: none"> b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
Teach Students How to Apply Literacy Skills	<ul style="list-style-type: none"> ● Provide opportunities to practice and demonstrate content/product specific communication skills ● Students relate research to the way in which information is to be presented ● Students use planning strategies, as needed
Element c – Numeracy	
Connections to Math	<ul style="list-style-type: none"> ● When possible demonstrate connections to math concepts in 21st century careers ● Connection to STEAM concepts is explicitly presented to students
Knowledge of Math Concepts	<ul style="list-style-type: none"> ● Math concepts are fluidly integrated into appropriate curriculum within STEAM
Element d – Content	
Appropriately Sequenced Lessons	<ul style="list-style-type: none"> ● Strategize the order that topics are taught ● Provide a variety of lesson structures ● Include note taking, teacher modeling, student independent practice, partner work, small groups, and whole class instruction ● Provide pacing/learning targets
Explanations and Representations	<ul style="list-style-type: none"> ● Provide multiple modes of instruction and assessment including, but not limited to: graphic organizers, modeling, videos, demonstrations, tutorials, speakers, field trips, online tutorials, etc. ● When applicable, students are provided an exemplar
Inquiry Methods	<ul style="list-style-type: none"> ● Provide opportunities for students to explore, ask questions, and reflect on their own needs for learning and interests. ● Students are in a collaborative learning environment (when appropriate)
Element e – Connectedness	
Build Connections	<ul style="list-style-type: none"> ● Connect learning in a variety of ways: <ul style="list-style-type: none"> ○ Prior learning ○ Cross-curricular connections ○ College and career readiness ○ CTE program connectedness
Element f – Relevance	
Students Make Connections	<ul style="list-style-type: none"> ● Opportunities for student choice in demonstration on learning ● Demonstrate real world applications of content ● To connect learning to student strength, when applicable, student choice in projects, assignments, testing, etc. is apparent

Addresses Learning Objectives	<ul style="list-style-type: none"> ● Provide opportunities for cooperative learning ● Student led discussions, when appropriate ● Student choice on projects and assignments, when appropriate ● Resources and/or opportunities are available for re-learning
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Standard II: Teachers establish a safe, inclusive and respectful learning environment for a diverse population of students

What does “Effective” look like in the classroom?	
<i>Element a - Learning Environment</i>	
Value Diverse Perspectives	<ul style="list-style-type: none"> ● Teacher encourages different ways of thinking and/or approaching problems and solutions ● Teacher provides opportunities for students to solve own problems
Model Respect for Diversity	<ul style="list-style-type: none"> ● Allow for different ways to share ● Allow for cultural discussions and learning related to content
Conducive for Learning	<ul style="list-style-type: none"> ● Create classroom management that supports/establishes a safe, structured environment ● Create classroom environment that promotes collaboration, when appropriate ● Create classroom environment that promotes growth in problem solving skills as it relates to STEAM content
<i>Element b - Community</i>	
Sense of Community	<ul style="list-style-type: none"> ● Establish class norms and expectations for group work ● Teacher promotes an environment that promotes collaboration, when appropriate ● Teacher promotes an environment that promotes group problem solving skills, when appropriate
Effective Student Interactions	<ul style="list-style-type: none"> ● Creating structures and procedures to meet an end goal ● When appropriate, an environment of student collaboration is established
Respect for Differences	<ul style="list-style-type: none"> ● Allow for flexible grouping ● Allow for respectful dialogue/discussions when differences are apparent ● Demonstrate empathy
Positive Social Relationships	<ul style="list-style-type: none"> ● Established guidelines for effective and appropriate feedback ● Model with interactions with students
<i>Element c – Student’s Strengths</i>	
Ask Challenging Questions	<ul style="list-style-type: none"> ● Higher Order Thinking/Questioning techniques are apparent

	<ul style="list-style-type: none"> ● Ask students to explain their thinking and reasoning rather than only asking questions that result in a yes or no answer ● Provide students the opportunity to elaborate on ideas
Scaffold Questions	<ul style="list-style-type: none"> ● Help provide a transition between what is learned and personal understanding ● Use Bloom's Taxonomy as a guide for asking questions
Wait Time	<ul style="list-style-type: none"> ● Matching wait time to instructional purpose and student need
Flexible Grouping	<ul style="list-style-type: none"> ● Intentionally group students based on learning objectives ● Intentionally group students based on strengths/weaknesses
Total Student Participation	<ul style="list-style-type: none"> ● Using strategies to ensure that all students participate in learning and that all students have equal opportunities for demonstrating their knowledge ● Provides classroom structures that ensure student engagement ● Use appropriate group sizes in order to keep student participation opportunities even

Element d – Differentiation

Solicit Input	<ul style="list-style-type: none"> ● Collaborate with peers to provide the best instruction ● Be informed on student IEPs, 504s, etc. ● Solicit input from students and their families to learn about students' strengths and areas for growth ● Hold Parent/Teacher Conferences to ask families for input
Differentiated Strategies	<ul style="list-style-type: none"> ● Use differentiated instruction like grouping, instructional modes, differentiated assignments (when appropriate), etc. ● Student choice in demonstration of mastery of learning ● When appropriate, student choice on projects/assignments/testing is apparent
Adapt Instructional Strategies	<ul style="list-style-type: none"> ● Use visual supports (choice boards, iPads, realia, sequence strips) ● Model individualization and differentiation ● Give students the opportunity to discuss and apply their learning with one another and as a group ● When appropriate, the use of graphic organizers is apparent
Challenge and Support Students	<ul style="list-style-type: none"> ● Lessons reach students who are at different levels ● Motivate all students to engage in the lessons and demonstrate their creativity ● Purposeful grouping and scaffolding are put into place so that all students can reach learning objectives

Element e – Home/School Connection

Partner with Families	<ul style="list-style-type: none"> ● Solicit input from students and their families to learn about students' strengths and areas for growth
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	<ul style="list-style-type: none"> ● Ensure that all students have access to the learning tools (or required technology) they need in order to be successful ● Hold Parent/Teacher Conferences to ask families for input
Coordinate Information	<ul style="list-style-type: none"> ● Use centralized communication modes in order to stay informed on students
Seek Services and Resources	<ul style="list-style-type: none"> ● Being aware of all child safety and report any suspected concerns ● Work with administration, counseling, and other services to meet students needs and welfare, when applicable ● Connect students with outside enrichment and post-secondary learning opportunities, when applicable
Frequent Family Communication	<ul style="list-style-type: none"> ● Use a variety of methods of communication that are accessible to all families (such as, email, phone, text, Schoology, Edmodo, etc.) ● Communicate student celebrations and student areas for growth with families ● Hold Parent/Teacher Conferences to ask families for input and communicate progress
Element f – Management for Learning	
Expectations Understood by Students	<ul style="list-style-type: none"> ● Rules, expectations, and protocols are clearly defined ● Students have an opportunity to help establish expectations, when appropriate ● Rules are posted and made public (in classroom or on syllabus)
Safe and Orderly Environment	<ul style="list-style-type: none"> ● Students are taught how to use equipment appropriately ● Teach how student behavior impact others ● Students are taught responsibility in using tools/equipment
Appropriate Response to Misbehavior	<ul style="list-style-type: none"> ● Teachers use de escalation methods for problem solving ● Teachers use student misbehavior as a learning opportunity ● Teachers enforce rules consistently
Maximum Use of Instructional Time	<ul style="list-style-type: none"> ● Teacher provides structures to ensure that students are using instructional time efficiently and has processes in place to maximize instructional time ● Teacher manages time and transition in order to maximize use of instructional time

Standard III: Teachers plan and deliver effective instruction and create an environment that facilitates learning for their students

What does “Effective” look like in the classroom?	
Element a - Child/Adolescent Development	
Adapt Lessons to Strengths and Weaknesses	<ul style="list-style-type: none"> • When appropriate, student choice is allowed on projects, assignments, and tests • Students are encouraged to create projects that exhibit student strengths • Allow for student mistakes to become learning opportunities
Implement Modifications and Accommodations	<ul style="list-style-type: none"> • Teacher is aware of and implements any modifications and accommodations per district documentations (i.e. 504’s, IEPs, etc.)
Knowledge of Current Developmental Science	<ul style="list-style-type: none"> • Provides age and content appropriate activities and assessments • Collaborates with colleagues regarding specific student needs and interactions, when applicable • When applicable, works with a CTE Advisory Committee about current industry needs and innovations
Collaboration with Colleagues	<ul style="list-style-type: none"> • When appropriate, collaborates with colleagues about student needs and interactions • When applicable, collaborates with a CTE Advisory Committee (industry colleagues) about current industry needs • When appropriate, collaborates with colleagues for co-curricular content alignment
Element b – Assessments	
Adjustment Based on Assessment	<ul style="list-style-type: none"> • Assesses student’s prior knowledge to inform instruction and assessments • Teacher uses formative assessments throughout content/unit to inform instruction • Teacher uses summative assessments to assess mastery of unit content
Encouraging Academic Risk	<ul style="list-style-type: none"> • Provides multiple forms of assessment (i.e. Informal, Formative, Summative) • When appropriate, teacher allows for student choice in projects and/or formative/summative assessments
Student Success	<ul style="list-style-type: none"> • Encourages students to build upon previous knowledge • Reinforces concepts learned by applying them throughout coursework • Relates content to future learning and/or real-world experiences • Relates CTE curriculum to industry standards
Element c – Effective Practices	
Clear Lesson Objectives	<ul style="list-style-type: none"> • Teacher posts objectives for learning (i.e. Content Language Objectives) • When applicable, teacher provides a syllabus with clear Essential Questions and Essential Learnings

<p>Create Authentic Discussion</p>	<ul style="list-style-type: none"> ● Ask open-ended questions related to content ● When applicable, relates discussion to postsecondary and workforce ● Discussion expectations appear to be set that help students practice soft skills ● Delivers instruction and content in a way that promotes student discussion (i.e. partners, groups, whole class)
<p>Student Reflection on Learning</p>	<ul style="list-style-type: none"> ● Teacher varies the ways that students reflect on own learning (i.e. Exit Cards, self-evaluations, rubrics handed out at the start of projects, etc.) ● Teacher offers opportunities for growth and discovery in content learning (i.e. hands-on projects, self-reflection, project choice that reflects student strengths)
<p>Varied Instructional Strategies</p>	<ul style="list-style-type: none"> ● Teacher is aware of multiple intelligences during lessons and projects ● Teacher provides feedback on individual's work and learning ● Teacher provides differentiated learning and instruction to meet individual needs
<p>Element d – Technology</p>	
<p>Research Effective Technology Approaches</p>	<ul style="list-style-type: none"> ● Uses technology to develop a variety of instructional strategies ● Adapts available technology to content learning and individual needs
<p>Develop Student Knowledge and Skills</p>	<ul style="list-style-type: none"> ● Uses technology as a tool to further student's learning ● Uses technology to further postsecondary and career force readiness
<p>Engaging and Motivating Experiences</p>	<ul style="list-style-type: none"> ● Teacher uses relevant and current technology ● Teacher uses technology to motivate postsecondary and career force readiness
<p>Digital Resources</p>	<ul style="list-style-type: none"> ● Teacher provides opportunities for digital research ● Teacher provides digital resources for growth of learning in content ● Teacher provides project-based learning using digital resources
<p>Element e – Critical Thinking</p>	
<p>Meet High Expectations with Support</p>	<ul style="list-style-type: none"> ● Teacher provides rigor in content ● Teacher provides scaffolding of content and curriculum to support student growth ● Teacher presents the expectation that students achieve the same end goals accomplished by using differentiation in instruction
<p>Higher-Order Thinking and Problem-Solving</p>	<ul style="list-style-type: none"> ● Wait time is provided for students to answer higher-order questions ● Scaffolding of instruction is provided that leads the learner to postsecondary and career force readiness ● Students are provided with opportunities to use resources to problem-solve content related issues

<u>Element f – Student Collaboration</u>	
Grouping Matches Task and Needs	<ul style="list-style-type: none"> ● Opportunities for collaborative/group learning is apparent ● Grouping of students changes based on student strengths, student needs, and the content/learning objectives
Varied Groups	<ul style="list-style-type: none"> ● Teacher thoughtfully creates groups based on student strengths/weaknesses ● Provides flexibility in groups to provide an accepting environment of all learners
Students' Collaborative Efforts	<ul style="list-style-type: none"> ● Teacher provides opportunities for students to work collaboratively when appropriate ● Teacher offers student learning groups opportunities for self-reflection ● Students have opportunities to develop soft skills during group learning situations
<u>Element g – Communication Skills</u>	
Model and Teach Effective Skills	<ul style="list-style-type: none"> ● Provides exemplars of previous student work, when applicable ● Use of appropriate technical or specialized language is apparent ● Provides demonstrations when appropriate ● Models practical skills for career/post secondary readiness
Practice Communication Skills	<ul style="list-style-type: none"> ● Students are provided opportunities to develop and practice soft skills ● Students are encouraged to use content and industry specific vocabulary when communicating
<u>Element h – Feedback</u>	
Frequent Feedback	<ul style="list-style-type: none"> ● Teacher provides accurate and consistent feedback ● Teacher keeps accurate record of current grades and progress ● Teacher provides formative and summative evaluation
Students Using Feedback	<ul style="list-style-type: none"> ● Teacher models appropriate use of feedback from both peers and the teacher ● Students are encouraged to learn from mistakes and build on knowledge of curriculum ● Students are given opportunities to see formative and summative evaluations
Informal Assessment Methods	<ul style="list-style-type: none"> ● Teacher uses a variety of assessment strategies to assess progress, including, but not limited to, labs/practical skills, classroom discussion, projects, written work, and participation