

Content Connections

CTE: Agriculture & Energy



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"> ● Provide and manage lab space and facilities based on industry standards (1800 sq ft greenhouse, aquaponics systems, orchard, etc.) to allow students practical, skills-based learning environment. ● Posting and discussing objectives and/or plans for the day, including an essential question based on learning outcomes for the CED for each course on file with BVSD. ● Posting a reviewing a syllabus, which includes a weekly project-based learning outline that shows the coursework and how it connects to real world experiences, related careers, and previous courses taken.
Respond to Student Misconceptions	<ul style="list-style-type: none"> ● Address current issues that impact the agricultural industry and develop scientific literacy skills to effectively analyze and evaluate trends within the industry. ● Connect to real world applications, continuing education opportunities and career connections ● Have students share their prior knowledge/opinions of a topic and be able to tailor lesson to meet misconceptions and misunderstandings
Collaborate Vertically and Horizontally	<ul style="list-style-type: none"> ● Align coursework with skills-based projects using small groups ● Collaborate with industry members, advisory committee and CTSO (FFA chapters) to complete labs, participate in civic engagement and reinforce learning outcomes through project-based learning. ● Connect learning to why the lesson is important and model experiences in the "real world"
Prepare Student for Next Level	<ul style="list-style-type: none"> ● Connect students to high education opportunities by inviting faculty from articulating colleges to speak with students and attending events hosted at Colorado State University. ● Inviting members of the agricultural and scientific community to serve as guest speakers or support staff during student projects. Examples would include research symposiums or "judges" during CTSO competitions. ● Connecting new content to prior learning and skills, building on previous learning and discussions

	<ul style="list-style-type: none"> ● Connect learning to why the lesson is important and model experiences in the “real world”
Element b – Literacy	
Provide Literacy Instruction	<ul style="list-style-type: none"> ● Develop lessons based on high-interest, industry-related texts (such as Pollan’s <i>Botany of Desire</i> or <i>Omnivore’s Dilemma</i>) that have clear applications for embedded literacy standards. ● Instruct process of literature reviews and locating credible sources for science research paper. ● Support student-selected non-text reading through classroom library based on industry-related books ● Scaffold reading of text with graphic organizers
Teach Students How to Apply Literacy Skills	<ul style="list-style-type: none"> ● Create a Science Symposium that allows students to present findings they write about in their research paper. ● Practice speaking through events with our CTSO (FFA meetings, demonstrations and competition events). ● Practice and support students when reading, writing, speaking and decoding information
Element c – Numeracy	
Connections to Math	<ul style="list-style-type: none"> ● Create a weekly “bell work” essential question that requires students perform mathematical functions in order to answer (i.e. calculating ppm in a nutrient solutions, ratios for soil mixes, etc.) that relate to learn content within agriculture and the plant sciences. ● Teach financial accounting principles through agribusiness content such as reading balance sheets, income statements and developing crop enterprise budget.
Knowledge of Math Concepts	<ul style="list-style-type: none"> ● Develop a vocabulary that connects numeracy to applications in agriculture such as sales, measurements, unit conversions and calculations.
Element d – Content	
Appropriately Sequenced Lessons	<ul style="list-style-type: none"> ● Create courses using the framework provided in the Colorado Community College System’s Coursebuilder tool using standards outlined in the district CED for each course. ● Have outline and/or scope and sequence of instruction posted in syllabus or on website that can be adjusted as needed ● Post monthly calendar within the classroom that details activities, labs and projects.
Explanations and Representations	<ul style="list-style-type: none"> ● Students will create an interactive sBe able to explain the relevance of learning to continued education and occupational options
Inquiry Methods	<ul style="list-style-type: none"> ● Students will create and use daily and interactive science notebook that allows them to consider the essential question of each lesson, test hypotheses and collect data from each lesson.

<u>Element e – Connectedness</u>	
Build Connections	<ul style="list-style-type: none"> • Work with community partners such as the Natural Resources Conservation Services, Colorado State Extension, FFA, Boulder Parks and Open Space, the School Food Program and other others to develop events (such as “From Our Land to Your Hands” or Career Development Events). • Using a multitude of multimedia and multiple intelligence techniques to connect content to students
<u>Element f – Relevance</u>	
Students Make Connections	<ul style="list-style-type: none"> • Utilize community resources, guest speakers or representatives from related colleges or institutions that offer degrees or license • Using a multitude of multimedia and multiple intelligence techniques techniques to connect content to students
Addresses Learning Objectives	<ul style="list-style-type: none"> • Using communication, discussion, opinion sharing opportunities for students to connect each learning objective to their own lives

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?	
<u>Element a - Learning Environment</u>	
Value Diverse Perspectives	<ul style="list-style-type: none"> • Allow students to collaborate and voice their thoughts and opinions regarding the content while feeling safe doing so. • Provide students with opportunities for choice in their learning • Maintaining sensitivity and awareness to current cultural issues and perspectives.
Model Respect for Diversity	<ul style="list-style-type: none"> • Cultural inclusiveness to program. • Value and respect all students through teaching and through student/teacher interactions.
Conducive for Learning	<ul style="list-style-type: none"> • Respectful, safe and engaging environment. • Open mindedness/Flexibility • Classroom facility is reflective of 21st century program industry content .
<u>Element b - Community</u>	
Sense of Community	<ul style="list-style-type: none"> • Establishing rules and procedures within the classroom with input from students • Creating a shared sense of responsibility for classroom environment

Effective Student Interactions	<ul style="list-style-type: none"> ● Work in mixed groups : ability, gender, age and etc... ● check in regularly with students to monitor groups ● Monitor group dynamics for negative interactions
Respect for Differences	<ul style="list-style-type: none"> ● Modify/scaffold/differentiate assignments/tasks, where feasible, within groups to accommodate all learners' individual needs.
Positive Social Relationships	<ul style="list-style-type: none"> ● Program event experiences./CTSO ● Pairing students and/or grouping students in the classroom ● Facilitate activities that foster student personal connections beyond the content.
Element c – Student's Strengths	
Ask Challenging Questions	<ul style="list-style-type: none"> ● Ask how and why questions so students are empowered to share. ● Play devil's advocate to deepen class discussion among students; challenge student thinking/reflecting. ● Do not always provide the answer- encourage students to discover answers and not be afraid to make mistakes
Scaffold Questions	<ul style="list-style-type: none"> ● Build from home and life experiences. ● Connect to other content areas to activate prior knowledge ● Connect to previous learning within the content area.
Wait Time	<ul style="list-style-type: none"> ● Be patient with responses and allow for "no response" situation ● Que students with language and or disability. ● Employ a sense of humor
Flexible Grouping	<ul style="list-style-type: none"> ● Allow students to change groups to facilitate productive interpersonal interactions.
Total Student Participation	<ul style="list-style-type: none"> ● Every student is hands-on. ● Consider physical proxemics when demonstrating to groups
Element d – Differentiation	
Solicit Input	<ul style="list-style-type: none"> ● Ask questions that allow students to reflect backwards in the learning experience and to also extrapolate forward. ● Get student feedback from students to grow teaching skills and strategies (i.e. student survey).
Differentiated Strategies	<ul style="list-style-type: none"> ● Provide alternate methods for less-abled learners and for rapid learners ● Quickly learn students who have specialized needs
Adapt Instructional Strategies	<ul style="list-style-type: none"> ● Take into account the visual, auditory, and kinesthetic learners

	<ul style="list-style-type: none"> ● Use graphic organizers, include visuals and realia, watch rate of speech, allow for hands on learning experiences to reach all learning styles in the classroom.
Challenge and Support Students	<ul style="list-style-type: none"> ● Written and practical assessment that is based on 21st century industry skill readiness. ● Analyze audience responses to evaluate how effectively the talk or presentation met the purpose
Element e – Home/School Connection	
Partner with Families	<ul style="list-style-type: none"> ● Family inclusiveness in program events . ● Solicit parent volunteers ● Parental/Guardian input in CTE Program Advisory Committees ● Encourage communication between students and parents/families about content to make a school-home connection
Coordinate Information	<ul style="list-style-type: none"> ● Create and maintain resources for students to access classroom content, assignments, and handouts. ● Collaborate with teachers within the department and outside the department to allow for cross curricular planning.
Seek Services and Resources	<ul style="list-style-type: none"> ● Utilize guest speakers, community resources, and advisory committee members to provide real world connections to content ● Mentorship and internship.
Frequent Family Communication	<ul style="list-style-type: none"> ● Parent teacher conferences , email , phone conversation. ● Infinite Campus Teacher Comments/Grades/eligibility/Progress Reports
Element f – Management for Learning	
Expectations Understood by Students	<ul style="list-style-type: none"> ● Objectives clearly written on board ● Rules and requirements clearly posted and referred to ● Expectations conveyed to parents via email and handout
Safe and Orderly Environment	<ul style="list-style-type: none"> ● Behavioral expectations clearly stated and reviewed ● Rules agreed to by students and parents -- rule agreements signed ● Dangerous equipment is used under supervision ● Dangerous equipment is kept secure
Appropriate Response to Misbehavior	<ul style="list-style-type: none"> ● Respond with care and concern for the well being of all students ● Admin intervention and mediation ● Carry out agreed process as per building regs/best practices
Maximum Use of Instructional Time	<ul style="list-style-type: none"> ● Lessons run sequentially bell to bell . ● Lessons are planned with flexibility in lieu of time allotment .

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?	
<u>Element a - Child/Adolescent Development</u>	
Adapt Lessons to Strengths and Weaknesses	<ul style="list-style-type: none"> ● Relate to real world application. Hands on learning opportunities. Providing activities to cater to multiple intelligences.
Implement Modifications and Accommodations	<ul style="list-style-type: none"> ● Scaffold lessons and allow opportunities for different types of instruction. Allow students opportunities to choose assignments that best fit their needs ● Follow all IEP’s, 504’s, TAG, and any other specified accommodations
Knowledge of Current Developmental Science	<ul style="list-style-type: none"> ● Age appropriate activities and assessments. Collaboration with colleagues regarding specific student needs and interactions.
Collaboration with Colleagues	<ul style="list-style-type: none"> ● Conversations with colleagues regarding RTO, kid talk, PST to keep current with specific student needs. ● Working with colleagues regarding standards and co-curricular content alignment being taught throughout the school.
<u>Element b – Assessments</u>	
Adjustment Based on Assessment	<ul style="list-style-type: none"> ● Assessing students prior knowledge of subject so that there can be a basis of measurement of student learning. Provide different types of assessments.
Encouraging Academic Risk	<ul style="list-style-type: none"> ● Provide opportunities for assessment that are low risk. ● Provide a multitude of forms of assessment. (informal/Formative/Summative) ● Entry/Exit Tickets
Student Success	<ul style="list-style-type: none"> ● Being able to build upon previous knowledge. Reinforcing concepts learned by applying them throughout coursework and in real world applications.
<u>Element c – Effective Practices</u>	
Clear Lesson Objectives	<ul style="list-style-type: none"> ● Have daily objectives for learning posted as well as within the syllabus clearly stating objectives throughout the course. ● Students will be aware of what they will know by the end of the course as well as be able to demonstrate knowledge in a variety of ways. ● CLO
Create Authentic Discussion	<ul style="list-style-type: none"> ● Provide a safe environment where all students feel comfortable participating in class discussion.

	<ul style="list-style-type: none"> ● Deliver instruction in an engaging and relevant manner so that students feel confident in their participation.
Student Reflection on Learning	<ul style="list-style-type: none"> ● Allow opportunities for students to look at work they have completed and learned and evaluate what their strengths and weaknesses were and are. ● Offer opportunities for deeper learning. There are no failures but opportunities for growth and discovery.
Varied Instructional Strategies	<ul style="list-style-type: none"> ● Using multiple intelligences ● Differentiation
Element d – Technology	
Research Effective Technology Approaches	<ul style="list-style-type: none"> ● Implement digital resources/tools as support for rigorous tasks. ● Adapt available technology to meet the needs of all students. ● Maintain classroom website and use technology to deliver a variety of instruction
Develop Student Knowledge and Skills	<ul style="list-style-type: none"> ● Use technology as a tool for further development of skills. ● Allows a platform for students to become student experts and to provide opportunities for other students to help teach other students
Engaging and Motivating Experiences	<ul style="list-style-type: none"> ● Apply technology when appropriate to further engage students while reinforcing previously learned concepts.
Digital Resources	<ul style="list-style-type: none"> ● Give students the opportunity to find new resources ● Use collaborative technology for students to work with other students in a more engaging and inclusive manner
Element e – Critical Thinking	
Meet High Expectations with Support	<ul style="list-style-type: none"> ● All students are expected to achieve the same goals and this is accomplished by using differentiation in instruction. ● Students will be prepared with a variety of work readiness skills.
Higher-Order Thinking and Problem-Solving	<ul style="list-style-type: none"> ● Real world applications. ● Allow students wait time to answer critical thinking questions. ● Be enthusiastic and supportive to create a safe environment for all students to feel comfortable so they are encouraged to participate
Element f – Student Collaboration	
Grouping Matches Task and Needs	<ul style="list-style-type: none"> ● Be aware of the students strengths so that you can match up groups that foster students supporting other students and becoming leaders.

Varied Groups	<ul style="list-style-type: none"> ● Provide flexibility in groups to provide an accepting environment of all learners
Students' Collaborative Efforts	<ul style="list-style-type: none"> ● Encourage students to work together when appropriate. ● Be inclusive of all levels ● Offer praise for learning and self evaluation
Element g – Communication Skills	
Model and Teach Effective Skills	<ul style="list-style-type: none"> ● Demonstrate appropriate technical or specialized language ● Provide demonstrations when appropriate ● Real world applications
Practice Communication Skills	<ul style="list-style-type: none"> ● Use verbal and nonverbal techniques to communicate information ● Expect students to communicate using their preferred mode of communication
Element h – Feedback	
Frequent Feedback	<ul style="list-style-type: none"> ● Provide consistent and positive feedback ● Provide feedback on general students progress ● Keep accurate record of current grades that can be accessed by the student and the family (IC) ● Feedback with families
Students Using Feedback	<ul style="list-style-type: none"> ● Model appropriate use of feedback as examples for students to follow.
Informal Assessment Methods	<ul style="list-style-type: none"> ● Labs, classroom discussion, projects.