



## STEM Glossary of Terms

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Strategic communications is one of the most urgent issues facing the continuity and effectiveness of STEM education advocates in Colorado. A coordinated communications effort across the various STEM stakeholders requires a common vision and language. This glossary of terms is a collaborative way to organize the vocabulary and common acronyms used by STEM advocates. As a living document, the glossary emphasizes real-world practices, focuses on issues that are relevant and important to STEM advocates, and cuts across the different STEM areas and covers non-technical issues such as finance, cost, management, evaluation, equity, etc.

### **GLOSSARY OF TERMS and ACRONYMS**

**ACT:** American College Testing, Inc., an education testing and research organization; also the widely-used test designed by the organization.

**After School Programs:** This Reform Movement supports the concept of educational funding for programs that are outside the regular school day.

**Alternative Education:** K-12 educational programs that vary in delivery from traditional kindergarten through twelfth grade settings. May vary in size of classes, grade levels instructed, graded vs. non-graded classrooms, pace of instruction, teacher-pupil ratio or style of instruction.

**Alternative Scheduling:** This Reform Movement term includes a variety of class scheduling alternatives, including block scheduling, trimesters and “skinny” class periods.

**At-risk:** programs geared for students with special needs who have experienced school problems.

**CABPES:** Colorado Association of Black Professional Engineers and Scientists

**CAP4K:** The Colorado Achievement Plan for Kids, also known as Colorado Senate Bill 08-212, which lays the groundwork for redefining standards and creating a seamless P-20 education system.

**CASB:** Colorado Association of School Boards

**CCHE:** Colorado Commission on Higher Education

**CDE:** Colorado Department of Education

**CDHE:** Colorado Department of Higher Education

**Charter Schools:** This Reform Movement advocates for the development of special schools that emphasize a specific curricular focus or learning environment. Local tax base support may be diverted to these charter schools, which may lead to long term negative effects on public school budgets.

**Class Size:** This is the actual number of students in each teacher's classroom. Use of General Fund monies are left to the discretion of the local principal. Depending on class size, he/she may decide to make further unpublished (or "hidden") cuts in STEM subject areas, particularly if "averages" are used rather than actual numbers.

**Computer Education:** computer literacy is incorporated into normal school work and met by routine classroom activities. The demands of 21<sup>st</sup> Century skills will require all students to have the opportunity to study computer science, technology, programming and data processing.

**Core Requirements:** Math, English and Science are the three subjects required and defined by federal, state and sometimes even regional laws. Proficiencies in these three subject areas are tested on a regular basis and funding (or cuts) may be directly affected by a district's ranking.

**CSAP:** Colorado Student Assessment Program; Colorado's statewide assessment to measure standards.

**Curriculum:** The overall teaching and learning program offered by an individual school. It includes all subjects and activities that students experience, not only in the classroom but also in after-school clubs or on school visits.

**Curriculum Standards:** Standards specifying what all Colorado students should know, understand and be able to do at each grade level. They also describe what should be taught at each grade level.

**Distance Learning:** Technological advances have expanded the classroom beyond the confines of a physical classroom. Distance learning, multimedia educational products, and other electronic teaching aids refer to the new ways students can obtain STEM skills and knowledge. For Colorado's most rural and underserved populations, distance learning can address the limited opportunities and access these students often have to high-tech classrooms or highly qualified teachers. (*see also "virtual high school"*)

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**District-wide:** A term used to describe any policy or decision that affects the entire district.

**Dual Enrollment:** through a cooperative arrangement with local colleges and universities, students may earn college credit for some courses taken while still in high school.

**Educational Stakeholders:** Stakeholders are considered to be all individuals, groups or organizations with an interest or concern related to the education of infants through adults.

**Electives:** Any curricular option that is not a required component of the curriculum.

**ELT:** Confusingly, the English language teaching world has a bewildering array of abbreviations and acronyms, many of which mean the same thing, and most of which have no official significance. ELT stands for English Language Teaching and is used as a blanket term that covers all forms of English language acquisition, whether for native- or non-native speakers.

**EFL:** stands for English as a Foreign Language and involves the acquisition of English by non-native speakers.

**ESL:** stands for English as a Second Language and involves the acquisition of English by non-native speakers.

**ESOL:** stands for English for Speakers of Other Languages and involves the acquisition of English by non-native speakers.

**EAL:** stands for English as an Additional Language and involves the acquisition of English by non-native speakers.

**“Feeder” Programs:** This term refers most commonly to programs for students in earlier grades that are designed to prepare them for higher level participation in a particular area of study. For example, students enrolled in elementary band would then “feed into” middle school or high school band programs. The elimination of such feeder programs has a detrimental effect on further music participation in the higher grades.

**Hands-on Experience:** As supported by the National Science Board, and the National Council of Teachers of Mathematics, the majority of highly effective STEM programs are designed to focus on STEM concepts through hands-on experience. This method provides students an opportunity to learn by doing thus enhancing their critical thinking. This type of experience not only enables the students to learn better, but also increases their ability to move towards the successful completion of the job.

**Information communication and technology literacy:** Also referred to as ICT literacy, centers on the skillful use of information resources, but it also built around a deep understanding of the “grammar” of technology. Just as a traditionally literate person can fluently incorporate a new vocabulary into her speech, so an ICT literate person can fluidly master new technologies to enhance her work and personal life.

**International Benchmarks:** Standard levels against which educational performance, provision or processes can be compared with those in countries that achieve excellence on international assessments. This includes international comparisons of test scores, number of years spent in school, teaching time per subject, curricular content and skills taught at each grade level, and other such variables.

**K-12:** Kindergarten through 12th grade.

**Laboratory E-Notebooks:** During distributed virtual laboratory experiment sessions, a major problem is to be able to collect, store, manage and share heterogeneous data (intermediate results, analysis, annotations, etc) manipulated simultaneously by geographically distributed teammates composing a virtual team. The electronic notebook is a possible response to this concern and is an important component of effective distance learning efforts and making STEM subjects more accessible to all students.

**Legislature:** the state and/or federal bodies that hold the authority to make laws; includes the Colorado House of Representatives and the Colorado Senate, as well as the United States Congress.

**Magnet Schools:** This Reform Movement created specialized schools to emphasize a particular area, such as foreign language, mathematics or science.

**Neighborhood Schools:** public schools nearest the home of a student.

**Non-Public Schools:** elementary or secondary schools within the state, other than a public school, offering education for any combination of grades kindergarten through 12, which may legally fulfill compulsory school attendance requirements. Includes parochial, religious-affiliated and private schools.

**PISA:** An acronym for the Program for International Student Assessment. This is an internationally standardized testing tool used to assess the literacy skills of 15-year-old students in reading, mathematics and science. All questions on the assessment are open-ended.

**P-20:** Refers to the establishment of a connected, cooperative system of public education from preschool to the achievement of an associates, technical, baccalaureate advanced, or progressive degree. Previous iterations of systems alignment have addressed preschool through undergraduate, referred to as “P-16.”

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**Pupil-Staff Ratio (PSR):** The school board establishes district-wide ratios to determine staffing needs based on the number of pupils in the district. The PSR is determined by the administration and approved by the school board. This ratio is normally the number of students per each 1.0 FTE position, including all staff (as defined by the district).

**Pupil Unit (PU):** This figure is the equivalent of the number of full time students. For example, if kindergarten students only attend school for one-half of each day, each student is the equivalent of .5 PU. It is used to calculate staffing needs based on the number of full time students (or 1.0 PU per student).

**Reform Movements:** Historically, there have been several different approaches to student scheduling, curriculum and financing of schools. The most common Reform Movements are Block Scheduling, Site-Based Management, Middle School Movement, Alternative Scheduling, Tax Vouchers, Charter Schools, School-to-Work, After-School Programs and Magnet Schools.

**SBE:** State Board of Education

**School-to-Work/School-To-Careers/Career Integration:** An integrated approach to providing students with opportunities to have information about careers, hands-on activities that show contextual learning. Approach suggests that all or certain students should begin to explore a career of their choosing (as early as grade 8) and places the students in a learning or vocational track for the remainder of their public education.

**Science Process Skills:** Process skills are the basic thinking skills used to explore, produce, and arrange knowledge about our world. They include observing, communicating, estimating, measuring, collecting data, classifying, inferring, predicting, making models, interpreting data, making graphs, hypothesizing, controlling variables, defining operationally, and investigating.

**SMET:** SMET is a lesser-used term that stands for Science, Mathematics, Engineering, and Technology.

**STEM:** STEM stands for Science, Technology, Engineering and Mathematics – the four core disciplines critical to the development of America’s technological innovations today and in the future.

**Student-Faculty Ratio (SFR):** This is the average number of students for each teacher. It is determined by dividing the number of pupil units (PU) by the number of teachers. Some districts may include non-teaching staff, such as guidance counselors, in the ratio.

**TEFL:** stands for Teaching English as a Foreign Language and involves teaching English to non-native speakers.

**TESL:** stands for Teaching English as a Second Language and involves teaching English to non-native speakers.

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**Technology Education:** programs involve students in a systematic study of the creation, utilization, and behavior of tools, machines, techniques, and technical systems.

**Virtual High School/Distance Learning/Learning Lab:** a method of instruction which involves a student participating via the Internet or otherwise on a computer. Courses may be offered as a scheduled class period with a certified teacher available in a public school setting, at a community college or university as part of dual enrollment, at home or in school before or after school hours with an on-site teacher/mentor.

**Work-Based Education Programs:** a learning program coordinated by a school district through a contract with an employer providing an educational experience related to school instruction, involving supervised work monitored by a certified instructor employed by the district, typically with a training plan or an Individualized Educational Plan (IEP).

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*Note: This glossary is an attempt to provide working definitions of terms found in education policy and terms commonly used by STEM education advocates. It is not an exhaustive list. For more information, please contact Beverly Buck at [Beverly.buck@ucdenver.edu](mailto:Beverly.buck@ucdenver.edu) or visit [www.cepa.ucdenver.edu](http://www.cepa.ucdenver.edu)*

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