

# TK-12 Education System: Whole Systems Analysis and Entry Point Considerations for Environmental and Climate Action Changers

Developed by Andra Yeghoian with collaboration from colleagues in CAELI and Ten Strands

Last Updated September 2023

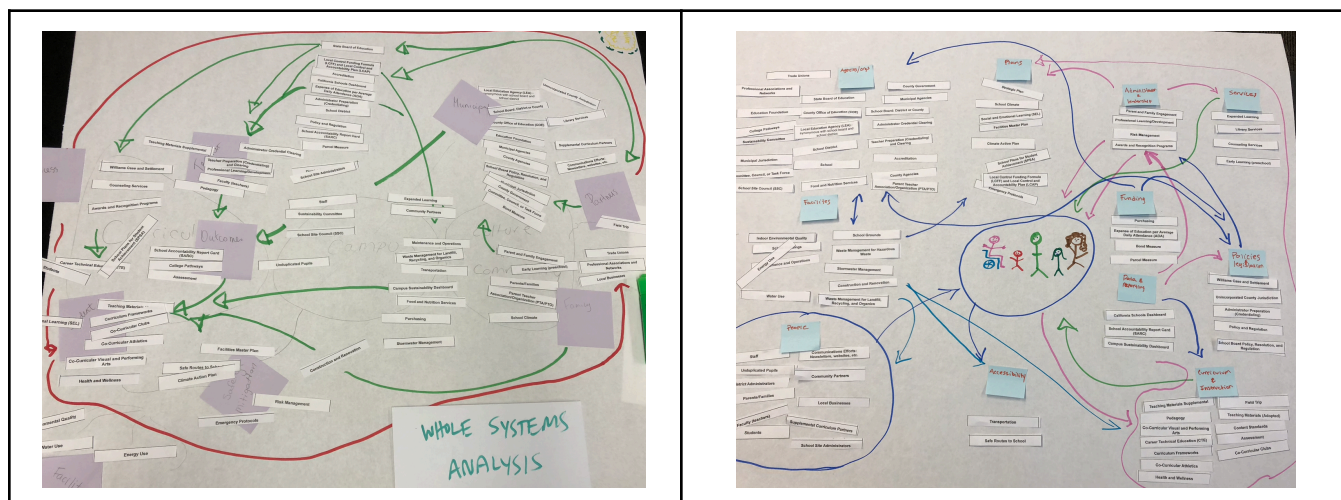
Digital Version: [www.tinyurl.com/AY-K12EducationSystemAnalysis](http://www.tinyurl.com/AY-K12EducationSystemAnalysis)

**Purpose and Overview:** Environmental and climate action in schools require transformational change at the whole systems level. A vital practice for leading a high impact change initiative at this whole systems level is utilizing [systems thinking](#), and [change theories](#) effectively. A key starting point for applying whole systems thinking is to make the system visible by identifying the variables (a.k.a. elements, people/groups, components, processes etc.) within a system and the relationships between them. This helps to identify how a system is structured, to surface causal relationships, and to analyze what might be effective leverage points for intervention.

This activity supports participants to create a “systems” diagram for the K-12 education system that surfaces the key variables (components) that exist within the education system, and makes the system visible. This activity has been designed to provide the starting point of this process with a starter set list of variables (see [Appendix A](#) and [Appendix B](#)) and an example diagram. Once the variables have been identified, participants can consider where there might be leverage points or entry points for change initiatives. Below are directions to run the activity in-person or virtually.

## DIRECTIONS FOR RUNNING THE ACTIVITY IN-PERSON

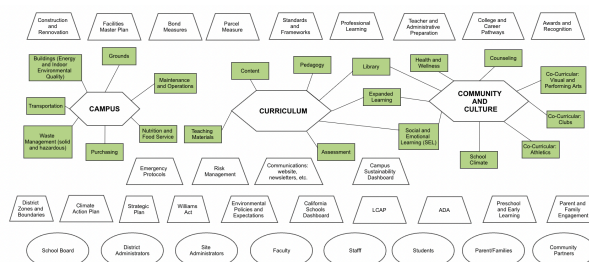
- **Step 1 - Review Variables:** Participants will be given an envelope with variables related to the education system (see examples in [Appendix A](#)). In pairs or small groups participants will first discuss and review each variable to check if the pair/group has a shared definition of what this element, component, person/group, or process is within the TK/K-12 education system. If participants are unsure about a term, visit [Appendix B](#) for definitions.
- **Step 2 - Sort and Gather:** Participants will sort and gather variables into different categories - Consider using the [4Cs Framework](#) (campus, curriculum, community, and culture), or any other category clusters (i.e. people/groups, accountability, policy, student activities, etc.).
- **Step 3 - Visual Representation:** Each partner/group will create a visual representation of the groupings by organizing variables into a diagram that shows the relationship between variables.



- **Step 4 - Gallery Walk:** Participants will display their visual representations around the room and conduct a gallery walk to learn from how other partners/groups created connections.
- **Step 5 - Debrief:** Ask participants to discuss (first in partners/groups then as a whole room)
  - What are some key takeaways you have about using a whole systems lens for an Environmental/Climate Literacy and Sustainable and Climate-Resilient Schools Initiatives?
  - What might be good entry points for environmental and climate action (environmental literacy, climate literacy, sustainability, and climate resilience efforts) in your context?
  - Where is your sphere of influence within this system currently?
  - What questions do you have, or what areas do you want to explore further?
  - How might you continue to develop your whole systems lens in your work?
  - How might you use this whole system lens when engaging different stakeholders in your initiative at the site, district, and county level?

### Directions for Running the Activity Virtually:

- **Step 1 - Review Variables:** Participants will review a list of variables in [Appendix A](#) check if the pair/group has a shared definition of what this element, component, person/group, or process is within the TK/K-12 education system. If participants are unsure about a term they should visit [Appendix B](#) for definitions.
- **Step 2 - Sort and Gather:** in pairs/small groups, participants will make a copy of the “[Whole System Education Variables Diagram - Virtual Activity](#),” and sort and gather variables into different categories - you can consider using the [4Cs Framework](#) (campus, curriculum, community, and culture), or any other categories that seem like important clusters (i.e. people/groups, accountability, policy, student activities, etc.).
- **Step 3 - Visual Representation:** Each partner/group will create a visual representation of the groupings by organizing variables into a diagram that shows the relationship between variables - *see example to the right*.
- **Step 4 - Gallery Walk:** Participants will share their visual representation slide with another group, or the whole class/workshop.
- **Step 5 - Debrief:** Ask participants to discuss (first in partners/groups then as a whole room)
  - What are some key takeaways you have about using a whole systems lens for an Environmental and Climate literacy and action initiatives in schools?
  - Where is your sphere of influence within this system currently?
  - What questions do you have, or what areas do you want to explore further?
  - How might you continue to develop your whole systems lens in your work?
  - How might you use this whole system lens when engaging different stakeholders in your initiative at the site, district, and county level?



## Appendix A - Variables

<b>Accreditation</b>	<b>Maintenance and Operations</b>
<b>Administrator Credential Clearing</b>	<b>Municipal Agencies</b>
<b>Administrator Preparation (Credentialing)</b>	<b>Municipal Jurisdiction</b>
<b>Assessment</b>	<b>Parcel Measure</b>
<b>Awards and Recognition Programs</b>	<b>Parent and Family Engagement</b>
<b>Bond Measure</b>	<b>Parent Teacher Association/Organization (PTA/PTO)</b>
<b>California Schools Dashboard</b>	<b>Parents/Families</b>
<b>Campus Sustainability Dashboard</b>	<b>Pedagogy</b>
<b>Career Technical Education (CTE)</b>	<b>Policy and Regulation</b>
<b>Climate Action Plan</b>	<b>Professional Associations and Networks</b>
<b>Co-Curricular Athletics</b>	<b>Professional Learning/Development</b>
<b>Co-Curricular Clubs</b>	<b>Purchasing</b>
<b>Co-Curricular Visual and Performing Arts</b>	<b>Risk Management</b>
<b>College Pathways</b>	<b>Safe Routes to School</b>
<b>Committee, Council, or Task Force</b>	<b>School</b>
<b>Communications Efforts: Newsletters, websites, etc.</b>	<b>School Accountability Report Card (SARC)</b>

<b>Community Partners</b>	<b>School Board Policy, Resolution, and Regulation</b>
<b>Construction and Renovation</b>	<b>School Board: District or County</b>
<b>Content Standards</b>	<b>School Buildings</b>
<b>Counseling Services</b>	<b>School Climate</b>
<b>County Agencies</b>	<b>School District</b>
<b>County Government</b>	<b>School Grounds</b>
<b>County Office of Education (COE)</b>	<b>School Plans for Student Achievement (SPSA)</b>
<b>Curriculum Frameworks</b>	<b>School Site Administrators</b>
<b>District Administrators</b>	<b>Schoolsite Council (SSC)</b>
<b>Early Learning (preschool)</b>	<b>Social and Emotional Learning (SEL)</b>
<b>Education Foundation</b>	<b>Staff</b>
<b>Emergency Protocols</b>	<b>State Board of Education</b>
<b>Energy Use</b>	<b>Stormwater Management</b>
<b>Expanded Learning</b>	<b>Strategic Plan</b>
<b>Expense of Education per Average Daily Attendance (ADA)</b>	<b>Students</b>
<b>Facilities Master Plan</b>	<b>Supplemental Curriculum Partners</b>
<b>Faculty (teachers)</b>	<b>Sustainability Committee</b>

<b>Field Trip</b>	<b>Teacher Preparation (Credentialing) and Clearing</b>
<b>Food and Nutrition Services</b>	<b>Teaching Materials (Adopted)</b>
<b>Health and Wellness</b>	<b>Teaching Materials Supplemental</b>
<b>Indoor Environmental Quality</b>	<b>Trade Unions</b>
<b>Library Services</b>	<b>Transportation</b>
<b>Local Businesses</b>	<b>Unduplicated Pupils</b>
<b>Local Control Funding Formula (LCFF) and Local Control and Accountability Plan (LCAP)</b>	<b>Unincorporated County Jurisdiction</b>
<b>Local Education Agency (LEA) -</b> synonymous with school board and school district	<b>Waste Management for Hazardous Waste</b>
<b>Comprehensive School Safety Plan (CSSP)</b>	<b>Waste Management for Landfill, Recycling, and Organics</b>
	<b>Water Use</b>
	<b>Williams Case and Settlement</b>

## Appendix B - Variables with Definitions

<b>Accreditation</b>	<b>Accreditation:</b> The recognition from an accrediting agency that an institution maintains a certain level of educational standards.
<b>Administrator Credential Clearing</b>	<b>Administrator Credential Clearing:</b> Programs that support credentialed administrators to officially “clear their credential
<b>Administrator Preparation (Credentialing)</b>	<b>Administrator Preparation (Credentialing):</b> Programs that train Administrators to work at the site or district level.
<b>Assessment</b>	<b>Assessment:</b> State standard assessment or local district assessments
<b>Awards and Recognition Programs</b>	<b>Awards and Recognition Programs:</b> Programs that provide a baseline standard for success. <a href="#">Environmental awards programs</a> include Green Ribbon, California Green Business, and other local programs.
<b>Bond Measure</b>	<b>Bond Measure:</b> School districts use construction bond measures to solicit approval from local property owners for the district to borrow funds, repaid through taxes. These funds are then used for major building construction and renovations projects.
<b>California Schools Dashboard</b>	<b>California Schools Dashboard:</b> California’s mechanism for reporting how districts, schools (including alternative schools serving high-risk students), and student groups are performing across state and local measures.
<b>Campus Sustainability Dashboard</b>	<b>Campus Sustainability Dashboard:</b> The purpose of a campus sustainability dashboard is to make facilities and operations data - energy, water, waste, procurement, etc. - transparent and accessible for use by multiple stakeholders for awareness, advocacy, and action.
<b>Career Technical Education (CTE)</b>	<b>Career Technical Education (CTE):</b> provides students and adults with the academic and technical skills, knowledge and training necessary to succeed in future careers and develop skills they will use throughout their careers.
<b>Climate Action Plan</b>	<b>Climate Action Plans</b> (CAP) are customized roadmaps for making informed decisions and understanding where and how to achieve the largest and most cost-effective emissions reductions that are in alignment with other municipal goals.
<b>Co-Curricular Athletics</b>	<b>Co-Curricular Athletics:</b> Before/After school or extended break programs for children and youth to learn and compete in sports.
<b>Co-Curricular Clubs</b>	<b>Co-Curricular Clubs:</b> before, during, or after school programs for students to
<b>Co-Curricular Visual and Performing Arts</b>	<b>Co-Curricular Visual and Performing Arts:</b> Before/After school or extended break programs for children and youth to participate in visual and performing arts.

<b>College Pathways</b>	<b>College Pathways:</b> provides students with the academic skills and training they need to be successful in higher education pathways (i.e. community college, college, university, etc.).
<b>Committee, Council, or Task Force</b>	<b>Committees, Council, or Task Force:</b> Committees or Councils are groups that meet regularly and are typically defined in organizational by-laws, charters, or other formal documents. These groups meet every year and are focused around special interest areas. A task force is also focused on special interests but is created in the short term for an “as needed” basis.
<b>Communications Efforts: Newsletters, websites, etc.</b>	<b>Communications Efforts:</b> Site and district-level newsletters, websites, etc.
<b>Community Partners</b>	<b>Community Partners:</b> Organizations that schools can partner with for programs and services.
<b>Construction and Renovation</b>	<b>Construction and Renovation:</b> Construction and remodel projects for new buildings or grounds.
<b>Content Standards</b>	<b>Content Standards:</b> The Content standards (first developed in CA after 1995) are adopted by the California State Board of Education and define the knowledge, concepts, and skills that students should acquire at each grade level.
<b>Counseling Services</b>	<b>Counseling Services:</b> School counselors provide academic, career, college access/affordability/admission, and social-emotional competencies to all students through a school counseling program.
<b>County Agencies</b>	<b>County Agencies:</b> A department, board, bureau, commission, division, office, council, committee, or officer of the county government.
<b>County Government</b>	<b>County Government:</b> Through elected officials, the county government enforces state laws, collects taxes, assesses property, records public documents, conducts elections, issues licenses. Through appointed boards and officials, the county provides parks, libraries, sewers, emergency management, public assistance, and hospitals. As required by state law, county government also serves unincorporated areas with services similar to a municipality.
<b>County Office of Education (COE)</b>	<b>County Offices of Education (COE):</b> COEs support local school districts in their region by providing services that can be done more efficiently and economically at the county level (i.e. development and training, operations and systems). COEs lead high impact change leadership initiatives, and provide various forms of oversight and regulation for the state over local districts and charter schools. COEs also provide direct student programs to vulnerable and marginalized populations.
<b>Curriculum Frameworks</b>	<b>Curriculum Frameworks:</b> Developed by the <a href="#">Instructional Quality Commission</a> , the frameworks provide guidance for implementing the standards adopted by the State Board of Education. The frameworks are updated periodically, every 3-10 years.
<b>District Administrators</b>	<b>District Administrators:</b> Educational leaders who work in a district office. Example roles are curriculum and educational services coordinators and directors, chief business officers, facilities managers, associate superintendents, superintendents, etc.

<b>Early Learning (preschool)</b>	<b>Early Learning (preschool):</b> an educational establishment or learning space offering early childhood education to children (usually from birth to age five) before they begin compulsory education at primary school.
<b>Education Foundation</b>	<b>Education Foundation:</b> Non-profit associated with a school district with a focus on raising supplemental funds for school programs. Sometimes educational foundations are connected to PTA/PTO efforts.
<b>Emergency Protocols</b>	<b>Emergency Protocols:</b> All schools should have an organized, systematic emergency operations plan in place to reduce risks and respond to emergencies. The four phases of emergency management include: Prevention (Mitigation), Preparedness, Response, and Recovery.
<b>Energy Use</b>	<b>Energy Use:</b> The amount of energy (either electricity or natural gas) that is used to run the operations of a school.
<b>Expanded Learning</b>	<b>Expanded Learning:</b> programs taking place before or after school or during extended breaks.
<b>Expense of Education per Average Daily Attendance (ADA)</b>	<b>Expense of Education per Average Daily Attendance (ADA):</b> Cost of educating one child calculated by expenses divided by the total days of student attendance divided by the total days of instruction.
<b>Facilities Master Plan</b>	<b>Facilities Master Plan:</b> Strategic documents that provide a district with information on both existing facilities and the recommended renovations needed to support both health and safety of their campuses.
<b>Faculty (teachers)</b>	<b>Faculty (teachers):</b> The teaching or academic staff of an educational system, that are hired with a purpose of providing education to the students.
<b>Field Trip</b>	<b>Field Trip:</b> An excursion or journey to a place away from their normal environment to study something first hand.
<b>Food and Nutrition Services</b>	<b>Food and Nutrition Services:</b> The state, district, and school departments that provide access to nutritious meals and snacks in schools, child care and adult care centers, day care homes, parks, and other community agencies.
<b>Health and Wellness</b>	<b>Health and Wellness:</b> Initiatives and staff focused around physical and mental health and wellbeing.
<b>Indoor Environmental Quality</b>	<b>Indoor Environmental Quality (IEQ):</b> The quality of a building's indoor environment determined by many factors, including lighting, air quality, and damp conditions.
<b>Library Services</b>	<b>Library Services:</b> Libraries provide students access and regular opportunities to read, explore, collaborate, create, think critically, and problem solve, and provide teachers access to resources and essential support to extend lessons beyond the classroom.
<b>Local Businesses</b>	<b>Local Businesses:</b> Businesses in the area near the school community.

<b>Local Control Funding Formula (LCFF) and Local Control and Accountability Plan (LCAP)</b>	<b>LCFF and LCAP:</b> The Local Control Funding Formula (LCFF) determines school funding and directs more resources to California's highest needs students. Districts must show how they will use school funding by setting goals across eight holistic state priority areas, and describing what services it will provide to achieve its goals. The LCAP is updated annually and revised every three years.
<b>Local Education Agency (LEA) -</b> synonymous with school board and school district	<b>Local Education Agency (LEA):</b> a public board of education or other public authority legally constituted within a State for either administrative control or direction of, or to perform services for public elementary schools or secondary schools in a city, county, township, school district, or other political subdivision of a State.
<b>Maintenance and Operations</b>	<b>Maintenance and Operations:</b> Ongoing maintenance and upkeep of school facilities and grounds related to safety and cleanliness.
<b>Municipal Agencies</b>	<b>Municipal Agencies:</b> A department, board, bureau, commission, division, office, council, committee, or officer of a Municipality
<b>Municipal Jurisdiction</b>	<b>Municipal Jurisdiction:</b> The definition of a municipality is a local area with its own government, or the government of such an area. The jurisdiction is the area over which the municipality governs.
<b>Parcel Measure</b>	<b>Parcel Measure:</b> Parcel measures have been historically used to fund academic programs and teacher support efforts, defined in the ballot measure by the school district.
<b>Parent and Family Engagement</b>	<b>Parent and Family Engagement:</b> Programs for engaging parents and families in school community
<b>Parent Teacher Association/Organization (PTA/PTO)</b>	<b>PTA/PTO:</b> A parent-teacher association/organization (sometimes a parent-teacher-student), which is a formal organization composed of parents, teachers, and staff who support the role of parent engagement in school functions. Often organized at different levels, site, district, region, and state.
<b>Parents/Families</b>	<b>Parents/Families:</b> Parents, guardians and family members of students enrolled in the school.
<b>Pedagogy</b>	<b>Pedagogy:</b> The methods, practices, and strategies associated with teaching.
<b>Policy and Regulation</b>	<b>Policy and Regulation:</b> Policies are rules that are made by state or local authorities to achieve their aims and goals. Regulations are rules that are made to make people comply and behave in a certain manner.
<b>Professional Associations and Networks</b>	<b>Professional Associations and Networks:</b> Membership networks and organizations often focused around a special interest or type of stakeholder. They provide members with valuable services, such as providing a forum for interaction and networking, establishing and maintaining industry standards and ethics, and sometimes legal support, lobbying, and public-relations.

<b>Professional Learning/Development</b>	<b>Professional Learning/Development:</b> Training programs for educators and staff.
<b>Purchasing</b>	<b>Purchasing:</b> The process a school or district uses to acquire goods or services to accomplish its goals. CalRecycle recommends <a href="#">environmentally preferable purchasing practices</a> .
<b>Risk Management</b>	<b>Risk management:</b> The process of making and taking action on decisions that will minimize the adverse effects of risk on the school. Common risks include campus hazards, lawsuits, bullying, disruptive learning, employee malpractice, etc.
<b>Safe Routes to School</b>	<b><a href="#">Safe Routes to School</a>:</b> Programs that aim to make it safer for students to walk and bike to school and encourage more walking and biking where safety is not a barrier.
<b>School</b>	<b>School:</b> A school is an educational institution designed to provide learning spaces and learning environments for the teaching of students/pupils
<b>School Accountability Report Card (SARC)</b>	<b><a href="#">School Accountability Report Card (SARC)</a>:</b> A detailed report regarding each school site about class size, demographics, test scores, school climate and more.
<b>School Board Policy, Resolution, and Regulation</b>	<b><a href="#">School Board Policy and Resolutions</a>:</b> A school board can pass board policies, resolutions, and regulations that provide general guidelines and frameworks, or specific rules that help the school community reach its long-term goals.
<b>School Board: District or County</b>	<b><a href="#">School Board</a>:</b> School board members are locally elected public officials entrusted with governing a community's public schools. The role of the school board is to ensure that school districts are responsive to the values, beliefs and priorities of their communities.
<b>School Buildings</b>	<b>School Buildings:</b> The built environment on a school campus including buildings for academics, co-curricular and recreational programs, dining, and maintenance. In some cases also buildings for residential student populations.
<b>School Climate</b>	<b><a href="#">School Climate</a>:</b> A broad concept that involves many aspects of the student's experience; including: engagement, safety, and the overall academic, disciplinary, and physical environment.
<b>School District</b>	<b>School District:</b> Sometimes referred to as a Local Education Agency (LEA), a school district is a special-purpose district that operates local public primary and secondary schools.
<b>School Grounds</b>	<b>School Grounds:</b> The outdoor areas within the boundaries of a school property used for teaching, extracurricular activities, and playing sports and games. School grounds usually have a mix of paved areas, hardscape, and natural landscape (fields, grass, gardens, trees, shrubs, etc.)
<b>School Plans for Student Achievement</b>	<b>The School (Improvement) Plan for Student Achievement (SPSA)</b> is a comprehensive document providing details about the school's planned actions and expenditures to support student outcomes and overall performance, and how these

<b>(SPSA)</b>	actions connect to the District's Local Control Accountability Plan (LCAP). This document is developed by the School Site Council.
<b>School Site Administrators</b>	<b>School Site Administrators:</b> Educational leaders who serve at school sites and oversee the day-to-day operations of a school. Example roles are Principals, Vice/Associated Principals, Deans, directors, facilities managers, etc.
<b>School Site Council (SSC)</b>	<b>School Site Council (SSC),</b> a collaborative, advisory group made up of school staff, parents, community members, and, at the secondary level, students. Development of the School Plan for Student Achievement (SPSA) is the Council's primary responsibility.
<b>Social and Emotional Learning (SEL)</b>	<b>Social and Emotional Learning (SEL):</b> The process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy, establish and maintain supportive relationships, and make responsible and caring decisions.
<b>Staff</b>	<b>Staff:</b> Employees in Local Education Agencies and schools who support the daily operations. Example roles include but are not limited to: food service, project coordinators, paraprofessionals, instructional aids, administrative assistants, coaches, nurses, drivers, custodians, expanded learning staff, counselors, extra-curricular activity staff, paraprofessionals, and other support staff.
<b>State Board of Education</b>	<b>State Board of Education:</b> The California State Board of Education is the governing and policy-making body of the California Department of Education. The State Board of Education sets K-12 education policy in the areas of standards, instructional materials, assessment, and accountability.
<b>Stormwater Management</b>	<b>Stormwater Management:</b> The process for managing water on and around the school campus during a rainstorm.
<b>Strategic Plan</b>	<b>Strategic Plan:</b> A fully documented plan for school agencies (COEs, Districts, School Sites, etc.) that articulates what the school community or agency wants to achieve in the future, and how it plans to get there.
<b>Students</b>	<b>Student:</b> A person enrolled in an educational institution.
<b>Supplemental Curriculum Partners</b>	<b>Supplemental Curriculum Partners:</b> Organizations that provide curriculum resources beyond required teaching materials
<b>Sustainability Committee</b>	<b><a href="#">Sustainability Committees</a>:</b> Have participation (or representation) from across the community: individuals, departments, each site, different roles, community partners; and meet at frequent and regular gatherings to focus on shared goals and projects that prioritize and build momentum towards sustainable outcomes.
<b>Teacher Preparation (Credentialing) and Clearing</b>	<b>Teacher Preparation (Credentialing):</b> Programs that prepare teachers to earn official teaching credentials, and also clear their credentials. And the process of certification through the California Commission on Teaching Credentialing (CCTC).

<b>Teaching Materials (Adopted)</b>	<b>Teaching Materials (Adopted):</b> Textbook materials and supplies that have been vetted by the state and are purchased by a school district to meet the required learning objectives.
<b>Teaching Materials Supplemental</b>	<b>Teaching Materials Supplemental:</b> Any instructional material (including additional texts, animate and inanimate objects, human and non-human resources, etc.) that a teacher may use in teaching and learning situations to help achieve desired learning objectives.
<b>Trade Unions</b>	<b>Trade Union:</b> An organization of workers intent on maintaining or improving the conditions of their employment, such as attaining better wages and benefits.
<b>Transportation</b>	<b>Transportation:</b> How stakeholders get to and from school on a daily basis, and for field trips and other co-curricular activities.
<b>Unduplicated Pupils</b>	<b>Unduplicated Pupils:</b> Students who meet a specific criteria; for example: English learners, students eligible for free or reduced-price meals under the National School Lunch Program, or are foster youth. “Unduplicated count” means that each pupil is counted only once even if the pupil meets more than one of these criteria.
<b>Unincorporated County Jurisdiction</b>	<b>Unincorporated County Jurisdiction:</b> The part of a county that is outside any municipality.
<b>Waste Management: Hazardous</b>	<b>Waste Management for Hazardous Waste:</b> The process for storing and removing hazardous waste from the school site and office buildings.
<b>Waste Management: Solid</b>	<b>Solid Waste Management for Landfill, Recycling, and Organics:</b> The process for sorting, processing, and removing waste categorized as landfill, recycling, or organics from a school site and office buildings.
<b>Water Use</b>	<b>Water Use:</b> The amount of water that is used to run the operations of a school and to maintain landscaping.
<b>Williams Case and Settlement</b>	<b><a href="#">Williams Case and Settlement</a>:</b> The outcome of a lawsuit (taking place between 2000 - 2004), which seeks to ensure that all students have equal access to instructional materials, quality teachers, and safe and clean schools.