The expectation by the State of California is that:

“All students are able to make appropriate choices and pursue a full range of realistic college and career and/or other educational options.”

and that:

The school provides for career exploration, preparation for postsecondary education, and pre-technical training for all students.”
CTE Program Definition

Pride * Purpose * Passion

● CTE is College and Career Preparation
● Integrated pathways and technical education courses
● Programs of study offer contextualized and applied learning opportunities; increase probability of student engagement
● Development of transferable skills: core workforce competencies, work experience, time, resource, and project management,
CTE Program Components

- Curriculum anchored in **high skilled, high wage, high growth** regional opportunities in 6 industry sectors.
- Offers content **within and beyond the school day**
- Early **College Credit** opportunities (concurrent college enrollment + credited work experience)
- **Work-based Learning Opportunities**: internships, apprenticeships, mentorships, guest speakers, site visits and greatly expanded dual enrollment options - Doing instead of hearing about.
BUSD CTE Industry Sectors

Arrived at by state recommendation, advisory, and existing resources

Health Science & Medical Technology

Public Service

Arts Media & Entertainment

Information & Communication Technology

Engineering & Design

Building Trades & Construction
Ongoing State Funding for Career Technical Education

The 2018-19 State Budget includes $300 million in ongoing funding for K-12 CTE in two components:

$150 million ongoing funding is allocated through the existing Career Technical Education Incentive Grant program AB 1743:

- Retains the 2:1 local/state matching grant requirement
- Requires a three-year maintenance of effort
- An applicant shall be eligible to receive a renewal grant if determined by the State Superintendent of Public Instruction (SPI) to meet eligibility standards and is deemed successful
- BUSD is well positioned for renewal – at same funding level our Round 3 Allocation was $335,000
Ongoing State Funding for Career Technical Education

$150 million ongoing funding to establish a new K-12 component in the Strong Workforce program to expand availability of “high quality, industry-valued CTE” Proposition 98

- An LEA shall work with its regional consortium based on its local community college district
- Funding is administered through the CA. Community College Chancellor’s Office to the fiscal agent of each consortium based on:
  - Unemployment rate (33%)
  - Region’s ADA for grades 7-12 (33%)
  - Projected job openings (34%)
- Requires 2:1 local state matching requirement for LEA’s

BUSD has joined the Bay Area Community College Consortium as we actively pursue Strong Workforce Funding
CTE Facilities Development

CTE classrooms that will house **Carpentry, Stagecraft Carpentry, Electronic Tech** and a **Fabrication Laboratory or “Maker Space”** are currently under construction and will open late next week!

Our burgeoning **Robotics Engineering** program will move into a portion of the space formerly occupied by BCM. Critically needed regular education classroom and teacher workspace will be created as well.

**Biotechnology** classroom upgrades to support **new technology**

**BHS Little Theater rigging** maintenance and new **sound and lighting equipment** to support Stagecraft, VAPA, and potential for expanded BHS use and theater rental

**BAS Electronic Tech classroom** to support **Mechatronics Engineering** Classes

We collaborated with our **industry & union partners** to develop program specific spaces, equipment lists, curriculum and teacher recruitment
Carpentry Shop & Fabrication Lab

Berkeley High School G112  This project involves the remodel of the former auto shop (currently used as an art studio), patio and two storage spaces into a new workshop space for the Carpentry, Stagecraft, and Engineering Programs. In order to support the curriculum of the CTE program, the spaces within the scope of work are divided into 6 main areas:

1. **Workshop 1**, which supports heavy maker equipment.
2. **Workshop 2**, which supports a classroom environment including access to CAD and other design software in addition to the existing CTE AP Studio Art classes
3. **Workshop 3** is a cleaner, dust-free maker environment for equipment such as the laser and vinyl cutter, 3D printers and for other activities that need a dust-free environment.
4. The **CNC machine** is enclosed in a transparent room to help attenuate the sound from the equipment.
5. **Secure tool and materials storage**
6. A partially **covered patio** for additional workspace, includes a welding station and wash out booth as well as lumber storage
CTE 2: BHS BUILDING G PARTIAL FIRST FLOOR PLAN- G112
CTE 2: BHS 3D VIEWS – WORKSHOP 2/ CNC
Berkeley High School G309  The work in this classroom includes upgrades to the electrical and ventilation systems in order to accommodate some new "state of the art" equipment including:

• **Nanodrop** - full-spectrum, UV-Vis spectrophotometer used to quantify and assess purity of DNA, RNA, Protein

• **-80°C ultra low freezer** designed to protect samples

• A **laminar flow** cabinet or tissue culture **hood** is a carefully enclosed bench designed to prevent contamination of biological samples

• **Refrigerated Laboratory Centrifuge** Refrigeration constitutes an important added feature Refrigerated laboratory centrifuges temperature ranges as wide as -20C – 40C, making them perfect for DNA, RNA, PCR or antibody analysis  - generously donated by Reset Therapeutics
**Former BCM Space and Little Theater**

**BHS G107 & G109**  Former Berkeley Community Media space - very minor maintenance performed. Will house **Robotics Engineering, FIRST Robotics**, provide a general education classroom, counselor & teacher workspace

**BHS Little Theater**  **Rigging Maintenance** - expected completion 9/21
Upgraded Sound, Lighting (Including LED's) and projection equipment. Greatly expanded technical capabilities will serve our **Technical Theater (Stagecraft)** and VAPA programs well as BHS general education and outside rentals
Electronic Tech Classroom

**Berkeley Adult School** This project involves the alteration of an existing classroom space to support the **Mechatronics Engineering** curriculum. The alteration includes new casework, new lighting fixtures, drop down electrical outlets to support **required equipment**, room exhaust, the refurbishment of the existing mechanical room ventilator, mobile workbenches in order to support a **lab based** curriculum that includes:

- AC/DC Electronic Fundamentals
- Digital Electronic Fundamentals
- Programming with Microcontrollers
- Mechanical 3D Design & Printing
- Programmable Logic Controllers
- Electronics Theory and Hands on Labs
- Ohms Law, Series and parallel circuit design
- Motor mechanics and control
- C++ Coding (Arduino) & Python Programming (Targeting Raspberry PI)
- Computer aided design and programming
3D VIEWS
New CTE Courses
Engineering & Design

Engineering Technology Pathway
The Engineering Technology pathway provides learning opportunities for students interested in preparing for careers in the design, production, or maintenance of mechanical, electrical, electronics, or electromechanical products and systems.

Mechatronics Engineering UCOP Laboratory Science ("d") Integrated Science
Mechatronics is a multidisciplinary field of science that includes a combination of electrical and mechanical engineering where students design, build, and program robotic mechanisms. This course was constructed in coordination with Los Medanos College and in partnership with EBMUD and other regional Utilities.

Robotics Engineering UCOP College-Preparatory Elective ("g") Laboratory Science – Physical Sciences
Robotics Engineering was launched last fall at BHS. 3 sections will be offered this fall. This course is designed to give students an overview of many aspects of engineering and design relevant to robotics applications. This course uses the VEX Cortex curriculum developed by Carnegie Mellon to introduce students to robotics and the engineering process. Students are learning how to design, prototype, build, and program VEX EDR robots.
Building Trades & Construction

Fundamentals of Carpentry: Design/Build Studio
With the Fall 2018 completion of a Carpentry shop and Fabrication Laboratory on the BHS campus we will launch the first course in this Pathway; The course covers construction and building design, performance, sustainability, the study of safety, hand and power tools, planning and design, applicable mathematics, blueprint reading, trade nomenclature, residential and commercial construction standards and other specialized skills. This course includes preparation for a Class B California License. (General Building Contractor) and the Carpenters Apprenticeship Program.

Stagecraft: Entertainment Technician UCOP College-Preparatory Elective ("g") Visual and Performing Arts
The proposed Entertainment Technician course introduces and develops students in four departments of entertainment technician expertise; Rigging, Carpentry, Lighting and Audio-Video. The course concentrates on fundamental and advanced elements of expertise an entertainment technician must have to succeed and thrive in the broad industry of presenting Performing Arts in its many forms.

These pathways are being developed in partnership with Carpenters Local 713 and International Alliance of Theatrical Stage Employees, Local 107 and BHS VAPA Staff.
This Pilot course has been developed in collaboration with BUSD Cooking and Gardening Program, The Edible School Yard, The Ecology Center, City of Berkeley Public Health and the Willard Growing Leaders Program

Provides an overview of many aspects of public and community health with a focus on diet related disease. The emphasis of this course is to provide students with an engaging, project-based, community-focused learning experience. Through these projects students will cover topics including epidemiology, study design, community mapping, policy development, prevention effectiveness, and health education. Students in this course will have many internship opportunities.

This course will support student interest and industry demand for public health professionals, and connect the K-8 Gardening and Cooking Program to the Academy of Medicine and Public Health.
BIS/BTA Pathway Development

CTE is working in collaboration with Berkeley Independent Study and Berkeley Technology Academy on the development of 2 potential pathways in the following Industry Sectors:

Education, Child Development, and Family Services

- Pathway - Education

Health Science & Medical Technology

- Pathway - Public Health

- BIS/BTA leadership and school community stakeholders will be included in the development process
- The UCB California Career Academy Support Network (CCASN) and ACOE have been engaged for support
- Exploring opportunity to recapture substantial CCPT 2 R4 Grant Funding
- Counseling 57 - likely dual enrollment course launch January 2019 in partnership with Berkeley City College
# Berkeley Unified School District CTE Pathways

## Health Science & Medical Technology
- **CA Industry Sector:** Biotechnology
- **Pathway:** Biotechnology
- **9th Grade CTE:** Counseling 7: Get Focused, Stay Focused
- **10th Grade CTE:** Bio Health Science & Biotech Community Service Professionals
- **11th Grade CTE:** BEST Biotech
- **12th Grade CTE:** BEST Biotech
- **Community College:** Berkeley City College
- **4 Year College:** CSUEB
- **Apprenticeship:** BAYER & City of Berkeley, Children’s Hospital, Kaiser, Alta Bates

## Public Service
- **CA Industry Sector:** Law & Social Justice
- **Pathway:** B-STEP
- **9th Grade CTE:** Law & Social Justice I
- **10th Grade CTE:** Law & Social Justice II
- **Community College:** Berkeley City College

## Arts, Media, & Entertainment
- **CA Industry Sector:** Digital Media
- **Pathway:** Digital Media
- **9th Grade CTE:** Digital Photography, Art of Video Production, Adv Studio Editing, Adv Digital Photo
- **10th Grade CTE:** Adv Media Production
- **11th Grade CTE:** Adv Media Production
- **12th Grade CTE:** Adv Media Production
- **Community College:** Berkeley City College
- **4 Year College:** KALA/BAMFA

## Information Technology
- **CA Industry Sector:** BHS Computer Science
- **Pathway:** BHS Computer Science
- **9th Grade CTE:** Intro to Programming, Beginning iOS App Dev, Android Basic (JAVA)
- **10th Grade CTE:** Advanced Programming, Intermediate iOS App Dev, Advanced Android Basic (JAVA)
- **11th Grade CTE:** Advanced Programming, Intermediate iOS App Dev, Advanced Android Basic (JAVA)
- **12th Grade CTE:** Advanced Programming, Intermediate iOS App Dev, Advanced Android Basic (JAVA)
- **Community College:** Diablo Valley College
- **4 Year College:** Diablo Valley College
- **Apprenticeship:** IATSE Local 107

## Building Trades & Construction
- **CA Industry Sector:** Stagecraft
- **Pathway:** Stagecraft
- **9th Grade CTE:** Stagecraft 1/2
- **10th Grade CTE:** Stagecraft
- **11th Grade CTE:** Stagecraft 3/4
- **12th Grade CTE:** Stagecraft 3/4
- **Community College:** Laney College
- **4 Year College:** Laney College
- **Apprenticeship:** Carpenters Local 713, Baywork & EBMUD

## Engineering & Design
- **CA Industry Sector:** Electronics & Design
- **Pathway:** Robotics Club
- **9th Grade CTE:** Robotics 1/2
- **10th Grade CTE:** Robotics
- **11th Grade CTE:** Robotics
- **12th Grade CTE:** Robotics
- **Community College:** Berkeley City College
- **4 Year College:** Berkeley City College