

DISTRICT ADDITIONAL ASSISTANCE OVERRIDE PROPOSAL

May-June 2022

The digital evolution is changing how we live. Our world is becoming more technology-driven as new innovations emerge every day.

-National Education Technology Plan

Catalina Foothills School District (CFSD) teachers and students are leveraging technology to enhance and add value to their learning experiences. The signs are all around us:

- Astronomy students, known as The Sub-Orbital team design, build, launch, and recover a small spacecraft equipped with a variety of scientific instruments. They program an advanced flight computer which records 10 channels of data. They operate a dual camera system that gives a nearly 360-degree panoramic view from onboard the spacecraft. The spacecraft sends back data on temperature, atmospheric pressure, and video from near space, about 32 kilometers above Earth's surface.
- K-12 students are deepening their understanding of grade level content using Nearpod-an online tool that maximizes student learning and engagement through interactive slides, videos, gamified learning activities, and individualized feedback.
- In Advanced Biotechnology labs, students isolate muscle protein, conduct DNA screenings, and complete microarrays to determine the difference between cancer and normal cells.

- In Technical Theatre, students are programming intelligent lighting elements using computer lighting boards during live theatre productions.
- Students are using Desmos, an online scientific calculator with advanced features for evaluating percentages, fractions, exponential functions, logarithms, trigonometry, statistics, and more!
- In Computer Science, students develop projects in Java, eventually preparing for the Oracle Certified Associate Java SD8 Exam 98-388.
- Teachers are using tools like Formative and Socrative to engage students in learning and to track real-time individual success using personalized audio, visual, and video feedback options.

- Students are using Scratch and other coding programs to build beginning through advanced coding skills and to explore career fields such as web design, game/mobile development, data science, cybersecurity, data engineering, and more.
- To learn about forced perspective photography, fifth graders use tablets to plan, stage, and capture images that use scale and point of view to trick the eye. At the conclusion of the project, they create a short video to reflect on their creative process.
- Band students enhance their practice time by using online tools like SmartMusic to record performance, providing them with real time feedback.

- World Languages students are analyzing cultural perspectives using digital archives of authentic audio and video to learn the knowledge and skills they need to interact effectively in Mandarin Chinese and Spanish.
- K-12 students are using iPads, smartphones, and digital tools like FlipGrid to create and share content with their teachers and families and to offer feedback to their peers.
- Students use state-of-the-art digital photography and publishing programs like Adobe Photoshop CC, Adobe Illustrator CC and Adobe InDesign CC.
- Engineering students can earn the Autodesk CAD Industry certification.

- Using LEGO Spike kits, teams of 2nd grade students programmed a car's light brick to turn on and off, flash, and repeat a pattern. Students created a light show with text and a sequence of colors.
- Film and TV students learn storytelling techniques by applying technical skills like camera operation, visual composition, and editing to the production of television programs.
- A middle school robotics team used JavaScript to develop a GPS mapping app which uses real time information on nearby trains to reroute users around potential slowdowns, reducing travel time and increasing safety.

Technology is ubiquitous, touching almost every part of our lives, our communities, and our homes. Think back a decade or two and many aspects of life today did not exist.

- The iPhone debuted in 2007.
- Wearable technology? A smartwatch has turned into a mini wearable computer which runs mobile apps, is a media player and some can be used as a mobile phone to take calls.
- In the last ten years, Facebook, Twitter, Instagram, and other social media platforms have enabled communication and collaboration on a global scale.
- The introduction of secure payment systems has greatly increased online auctions, shopping, and banking.
- The first iPad was introduced in 2010. The tablet computer with everything contained into one touch screen has become common in many homes.
- The connectivity we have been given by the Internet means we can stay in touch with instant communication. We have access to online connectivity more or less wherever we go.
- Mobile computing continues to expand, making Internet access on the go integral to everyday life. We had no idea that the Internet would transform how people live their lives and relate to one another and the world around them.

Born in another time, today's students will use tech-based tools throughout their lifetime. For them there is no divide between "technology" and their daily lives. Their future will require them to be knowledgeable and proficient in the use of technology, and to engage with content and others beyond the classroom to anywhere in the world where people have access to devices and Internet connectivity. We believe it is our responsibility to teach and encourage our students to master technology as it applies to their learning and the future.

How can we continue to capture the potential of technology in every CFSD classroom for every teacher and every student?

The CFSD community's investment in technology has enabled the district to keep pace with the ever-changing technological and educational landscape. The district will have the capacity to proactively continue to provide technology and curriculum-related tools and resources in its classrooms for all students and educators if voters agree to underwrite this investment over seven (7) years, 2023-2024 through 2029-2030, via a District Additional Assistance (DAA) budget override.

The override generates \$2 million annually for seven years with a projected tax rate that doesn't exceed its current level. The funds generated will continue the infusion of technology equipment, software, tech-based tools, and print and digital curriculum materials/resources into classrooms for student and teacher use. Today, in 2022, we envision a technology purchase plan as described below. As time goes by, we need the flexibility to adjust the mix of tools and resources based on the most current and relevant technological advancements.

Technology Equipment and Software

A major goal of the DAA override is to enable CFSD to provide each student with at least one Internet access device and appropriate software and resources for daily instructional use supported by a robust technology infrastructure. The form of these devices, software, and resources may or may not be standardized and will evolve over time because we are not able to forecast emerging technology trends. Due to the variety of devices that are available, we anticipate accomplishing this goal through the use of full-featured laptops, tablet devices, and cloud-based devices. The district has an established practice that ensures equitable distribution of and access to a standard set of technological tools and resources.

One of the primary expenditures in the current DAA override is in the lease of Apple laptop computers. The district supplemented these devices with Chromebooks and iPads. Overall, these devices have proven to be sturdy, reliable, and excellent instructional tools. Since 2009, we have been able to maximize the use of devices moving from a ratio of 1:3 to 1:0.8. Leasing provides the district with a replacement cycle.

CFSD makes use of Google Workspace. A suite of apps is available to students across all grade levels. Heavy usage of these tools has made Google Chromebook devices a viable and cost-effective option. For one-third the cost of a full-featured laptop, students can conduct Internet research, create, and share documents and files, and access countless “cloud-based” resources. These, and successive devices, are likely to be increasingly used in CFSD.

Teachers find their laptops to be a critical tool for research, presentation, lesson creation, grading, and professional learning. Students have grown to depend on available devices to assist them in research, content creation, communication, and collaboration with others in CFSD—and abroad. We plan to continue the process of procuring laptops, tablets, and other emerging technologies. This will enable the district to continue to provide our students and educators with state-of-the-art teaching and learning tools that are both productive and effective. Other current technologies used in our classrooms are computer connected projection units, document cameras, versaboards, and Apple TVs. Emerging technologies provide new options for interaction and learning, including the ability of students to display their own screens to the projection device.

Projected Expenditures:

- Maintenance and replacement of standardized classroom equipment (e.g., projection units, document cameras, Apple TVs)
- Leases for laptop computers to replace outdated devices and to increase daily access (laptops are refreshed about every 3-4 years)
- Chromebooks or similar devices to supplement or increase device access
- Carts for devices, as needed
- Software and apps for laptops and other devices that support instruction and meet the district standard
- Classroom projection improvements (projectors, mounts, wireless display technology)

Teaching and Learning

Modern technologies have reshaped and will continue to transform the classroom in many ways. Resources that support curriculum and school media centers/libraries are expanding to include hardware, software, web-based applications, and online texts/resources (e.g., e-texts/e-books) to reinforce and extend learning, track progress and growth, and engage students in interactive learning when and where they need it. The DAA override will enable the district to procure hardware devices such as laptops and Chromebooks, science-related probeware, Spike Prime LEGO Robotics kits, Edison robots, and other computer-connected, curriculum-related materials and equipment. Frequent exposure to, and application of, varied technological tools during the learning process helps to prepare our students to be digitally literate - a reality of their future.

Web-based applications are a valuable alternative to the traditional option of purchasing software that must be installed on computers. The benefits include the ability to stay current with the latest version, the ability to access the application from a variety of platforms, and oftentimes the ability to access the application from home. Web-based options open the door to a wide variety of resources that will support CFSD curricula and programs. Additionally, the value of open educational resources is recognized worldwide, leading to a vast array of learning, teaching, and research resources that learners of any age can use across all content areas, realizing that established procedures are necessary to evaluate and select these digital resources for instructional use.

Projected Expenditures:

- High quality print and digital learning content (software, texts, and supplemental resources) and related hardware
- Curriculum resources and tools for major adoptions such as social studies
- Software and apps for laptops and other devices that support instruction and meet the district standard
- Web-based subscriptions and apps for research, curriculum content, and assessment
- Web-based planning and learning tools
- Library/Media Center resources (books) and technology
- Library subscriptions

Infrastructure (Enabling Access and Effective Use)

To achieve meaningful technology integration in the classroom, a robust education technology infrastructure is a must. In CFSD, students and educators will have access to a comprehensive infrastructure for learning when and where they need it. It has proven cost effective to offload services to the Internet, but some services still require server hardware residing in CFSD. Certain curricular applications and storage needs will only function with local server hardware. In addition, servers are required to provide directory services and authentication to verify and secure our user accounts on the network. The DAA override funds will be used to maintain the proper level of hardware to support this need.

While there is still a need for local servers and storage capacity, the growing demand is for network capacity. Because of web-based applications, Internet research and resources, and cloud storage, a robust network must be provided to students and staff. The current network may be sufficient for today, but it will quickly become obsolete. Within the timeframe of this DAA override, all network equipment will need to be upgraded to provide adequate bandwidth and capacity for student and staff learning and productivity. This will include firewalls, routers, switches, wireless network controllers, wireless access points, and fiber replacement.

The CFSD communication system utilizes Voice over Internet Protocol (VoIP) technology. It has been extremely reliable and has given the district a number of benefits, particularly in the areas of safety and communication. The initial change to this system occurred nearly ten years ago. While some of the critical components have been upgraded to maintain current standards, the system will require ongoing upgrade and maintenance.

Projected Expenditures:

- Server hardware and storage
- Network improvements and maintenance (wired and wireless)
- Wireless access points
- Fiber optic cabling
- VoIP communication system upgrade
- System management and security software and hardware
- Destiny server (for libraries)

Knowledge and proficiency in the use of technology will be required of our students regardless of the college and career pathways they choose. Through the learning and application of these technologies, the district will provide students with the ability to adapt to change, solve problems, make decisions, and think critically and creatively. Technology is an increasingly important aspect of modern school life and has dramatically changed the way students and educators go about their daily activities.

CFSD will continue to evaluate how the integration and use of technology impacts the professional skills of teachers and the learning results of students. That analysis will inform the long-term investment in technology.

