

The Summit School is excited to announce our proposed SMART Schools Expenditure plan. The proposed technology acquisitions will enhance students' learning experiences and facilitate the development of 21st century skills. The proposal includes the acquisition of items outlined below for a total budget of \$113,658.

### **Items**

#### 120 HP Chromebook 11A G6EE Chromebooks

These units will augment our existing fleet of 1:1 devices to give all students computing capabilities and internet access in all of their classes. We currently have a fleet of Chromebooks shared among classrooms, but this addition will give each teacher a complete class set. Teachers and students currently utilize Google for Education services, which support teaching and learning. Each student and staff member currently has an account giving them access to these services. The new devices are compatible with this current system as they will provide students and staff continuous access to these services.

#### 2 Canon Direct iPF Pro 2000 Printer

This color printer will be utilized in our existing media center to augment our Technology and Media Arts program. In core academic classes and electives (Media Arts, Studio Art, English Language Arts I, II, III and IIII, Earth Science, Living Environment, Global Studies I and II, and Health), students currently utilize a variety of design softwares and web based applications including Adobe Photoshop CC. Use of the Canon Direct iPF Pro 2000 Printer will be integrated with existing courses and projects to enhance all students' capabilities to produce and publish print content.

#### 2 Makerbot Replicator 3D Printers

The use of 3D printers benefits students as they acquire knowledge about new technologies. 3D printing in education permits complex theories to be simplified. Therefore, students benefit especially in the MINT (mathematics, information technology, natural sciences and technology) subjects, where 3D technology helps their understanding. However, also used in subjects such as art, and geography 3D printing can be an advantage. The printers will be used in computer application classes in grades 3 through 12.

#### 3 Triumph Board 55IN Flat Panel Display

We will purchase 3 interactive whiteboards for use within 3 classrooms: Social Studies Special Class, Music Special Class, and Art Special Class. The Triumph Board connects with a Computer or Chromebook through an HDMI connection and mirrors and /or duplicates the computer display giving teachers the capacity to present a wide variety of digital and interactive content to students. The Triumph Board also has its own operating system, allowing it to function as a digital whiteboard, without a computer connection, to be used for instruction and collaboration within the classrooms. We currently have similar interactive whiteboards in all classrooms except the three mentioned above. Teachers have received training and practice utilizing the models we intend to purchase, and teacher computers are compatible with the devices to allow for immediate use of the interactive whiteboards in these classrooms.

#### 72 TI- 84 Plus Graphing Calculators

The TI- \*4 Plus Graphing Calculator is used by students during instruction and assessment to visualize concepts clearly and make faster, stronger connections between equations, data and graphs. The math department currently uses some TI- 84 Plus Graphing calculators for instruction and assessment in Algebra

and Geometry. This set of calculators will augment the math department's existing set of calculators and replace some older units that do not function optimally to facilitate student learning and assessment.

#### Education AR/VR Kit - Intel + Google Expedition (10 Pack)

VR Kits come as a 10-pack class set; the equipment enables students and teachers of Google's Expeditions App to experience virtual reality (VR) and augmented reality (AR). The set includes: 1 x Dual Core Router, 1 x Google Pixel Slate Teacher Tablet, 10 x Google Pixel 3A Student Device, 1 x Charging Cart, 10 x Student Viewer. We currently have the network bandwidth to support accessing the Google Expeditions application using this equipment within our classrooms. This kit will be shared among teachers in all departments and stored securely in our Teacher Collaboration Center. A designated teacher from each department will use training materials provided with the VR kit to support teachers and students throughout implementation of VR and AR activities using the kit.

#### 20 MacBook air

All high school seniors are required to participate in a computer course, which culminates in the production of a three-minute video. Students are required to write film, but most importantly edit and add effects to their video. The MacBook air is the simplest computer with editing capabilities. All senior videos are screened at high school graduation.

#### 6 iMac Desktop

Summit currently has a twelve-station computer lab with six-disabled iMac's more than eight years old. The six new iMacs will permit the computer lab to engage twelve students for multiple classroom operations.

#### 1 MAC Pro

The Mac Pro is an Apple workstation, designed for advanced computer graphics, and is an important tool for applications that use as many processing cores as possible such as, video-editing applications, image-editing, 3D programs, and animating film.

### **Details**

Adding additional Chromebooks to our existing fleet will improve the quality of instruction because students will have full access to the devices rather than sharing with classmates. Students will be able to use their personal Google for Education services through access to their school managed accounts. Access to 1:1 devices increases students' real-life communication situations, thus increasing their acquisition of critical twenty first century skills. Students can access blogs, websites, and online text giving them experience developing information literacy skills. Advanced literacies denote a set of skills and competencies that enable communication, spoken and written, in increasingly diverse ways and with increasingly diverse audiences. This expands teachers' capacity to design meaningful learning activities and to consistently differentiate instruction to meet students' individual needs. Each student having their own device also saves instructional time in that teachers no longer have to manage grouping and sharing of the devices. Students having their own devices is an ideal situation because it minimizes distraction and helps to create a sense of autonomy and independence, which further develops students' twenty-first century skills and their skills in executive functioning.

Augmenting our existing Technology and Media Arts program with one Canon Direct iPF Pro 2000 Printer empowers students to produce, publish, and display print content. Providing students with the ability to publish their design work is empowering for students in that they are able to plan, design, edit, and revise

their work; this process involves many twenty-first century skills such as communication, collaboration, and critical thinking. Students will develop and practice these skills through the completion of the various publishing projects they complete in different courses including: Media Arts, Studio Art, English Language Arts I, II, III and IIII, Earth Science, Living Environment, Global Studies I and II, and Health.

The process of publishing students' print work empowers teachers by giving them the means in which to prepare students with critical skills and address New York State Learning Standards in academic content areas, in Social Emotional Learning and Technology. Teachers will design authentic learning units featuring projects in which students plan and create professional quality design products that will be utilized and displayed throughout the school and the community. Emphasis will be placed on the importance of attention to detail and the utilization of twenty first century skills.

Adding 3 additional Triumph Boards ( 55IN Flat Panel Display) gives teachers the capacity to differentiate instruction for visual and auditory learning modes. Teachers can present a wide variety of digital and interactive content from the web to students within the classroom including: video, live stream, web sites, digital archives, interactive games, learning apps and other interactive educational materials. Use of the flat panel displays enhance the teacher's ability to model skills and practices in the classroom including those that build on students' 21st century skills.

The math department currently uses some TI- 83 and some TI-84 plus graphing calculators for instruction and assessment in Algebra and Geometry. The TI-83 units do not function optimally, and need to be replaced with new TI-84 plus units. For example, the operations such as greater than and less than cannot be input into an equation on the TI-83 units, which is a task students would need to complete for the Algebra Regents Exams. Many students in our school have Individual Education Programs that include use of a calculator as a program and testing accommodations. Adding an additional 24 calculators to the existing collection will ensure all students have access to a calculator during class and assessment time and during after school tutoring sessions. The use of the graphing calculator is in line with Mathematics Learning Standards for New York State, and they help students visualize concepts clearly and make faster, stronger connections between equations, data and graphs.

The Google Expedition Virtual reality Kits will be impactful in extending learning beyond the classrooms empowering students with virtual and augmented reality experiences. History students can take tours of the pyramids when they were "new", and then compare them to how they are now all through VR field trips. In the sciences students can do virtual dissections for biology, see into volcanoes and the earth's crust for earth science, manipulate electrons and protons on atoms to see reactions. In math, students can manipulate shapes and angles and see how the trig identities work and build polygons. English classes can see how Scotland looked at the time of Macbeth or the roaring 20's for the Great Gatsby. This technology

The fleet of 20 MacBook Air computers will provide our seniors with opportunities to create digital content for publishing. This happens in the form of multi-step projects in which students develop a project proposal with a detailed outline, and they collaborate with the instructor to produce content. In doing so, students develop and strengthen not only skills in creating digital media, but also executive functioning skills.

Upgrading the computer lab with 6 IMac Desktops will ensure greater access for all students to multiple digital tools, applications, and learning and assessment platforms. Students will use the lab for computer

based testing and to work on computer generated academic remediation programs. As an added benefit, a full twelve-station lab will provide time, space and opportunity for students to develop competencies in digital citizenship and other twenty first century skills.

The Mac Pro will be the teaching tool in the multi-period graphics arts class. Students are instructed in animating, video editing and graphic arts presentations. The course is offered to students in the eleventh grade and components of the course permit students to prepare a computer graphics portfolio for college admission.