BEAVERTON
SCHOOL DISTRICT

School Board Meeting
November 26, 2018
Strategic Plan Report Summary

Title: Technology Report

Objective: The objective of this document is to report the state of technology systems functionality and on strategic key measurements of student and staff technology experience.

Data: Data on percentage of staff and students reporting adequate access to technology is provided through the 2017-18 staff and student surveys. Additional data sources for this report include the Help Desk System, Asset Management System, server and networking systems log files.

Measurements 1 and 2: Staff and student reporting access to technology

Measurement	2013/14	2014/15	2015/16	2016/17	2017/18
% teachers reporting adequate access to technology to support their instruction	**46.5%**	**49.5%**	**66.6%**	**83.5%**	**86.5%**
% students reporting adequate access to technology to support their learning	**83.7%**	**85.4%**	**91.1%**	**92.8%**	**94.5%**

Successes:

- Staff and student feedback regarding access to technology continues to remain high.
- Staff survey customer service results showed a 15% increase in BSD staff ranking IT customer service as high, up to 81% from 66% in the prior year.

Issues:

- Cybersecurity threats continue to increase in frequency and sophistication. The IT Department is working through a year-long staff awareness campaign in addition to systems improvements and procedural changes to protect student and staff data and information.

Action Plan:

- Work to increase technology support for students and staff continues through bond and general fund investments and is summarized in this report. While not inclusive of all projects within IT, the projects below represent work aligned to increasing staff and student satisfaction of how technology supports their work.

Technology Systems – 2018/19 School Year

Infrastructure Improvements

Technology plays a vital role in student learning and the support of instruction relies upon a robust and reliable technology infrastructure. We are entering our fifth year of bond-funded, system-wide infrastructure improvements supporting student and staff use of technology for learning.

Data Centers

The 2014 Bond funded the construction of a district data center. Our existing facility lacked a number of security and physical requirements needed to adequately house and protect mission-critical servers, telecommunications, and networking equipment. The new data center contains redundant power, cooling and back-up generator systems to provide an environment designed to eliminate single points of failure.

Figure 1: Capital Center Data Center

With the new data center functional, IT staff began designing a "High Availability" data center, using both the new data center and the existing facility. The concept splits our virtual server and data storage infrastructure across both facilities and has them act as one "stretched" data center. In the event of a failure that would completely disable one location, the other facility will take over sole support of the district in a matter of minutes, ensuring access to the student information system, the HR/Finance system, and other applications.

Business Continuity and Disaster Recovery

IT staff are evaluating solutions to quickly recover and continue to provide systems access should a natural disaster occur and are planning on using either a co-location of servers in another geographic region or using cloud infrastructure to provide access in the event of a natural disaster.

All schools and departments have documented business continuity plans and IT is working with the Safety and Security Department on the 2018-19 update to the plans.

Cyber Security

The securing of BSD networks, systems and data is a critical area of focus for the IT Department. Since January 2016, there have been 384 cyber security breaches reported by school districts in the United States, ranging from account compromise, ransomware attacks, to unauthorized access and disclosure of personal data[1].

As the frequency and sophistication of cyber security attacks increases, the BSD IT Department continues efforts to proactively defend against threats. IT staff are implementing new security systems and procedures to protect BSD resources and data. A combination of these systems improvements, procedural changes, and staff training are required to best protect the organization.

“Phishing” is one of the most popular and widespread methods cyber criminals employ to gain unauthorized entry into computer systems. Attackers send messages to large groups of users pretending to be either another BSD employee or a vendor. This is designed to entice staff to provide their username and password, often through the attacker’s fraudulent web site. “Spear phishing” is another popular attack where specific BSD staff are targeted with a sophisticated fake message containing additional information designed to obtain username and password. The staff targeted in spear phishes usually have higher levels of access to confidential systems.

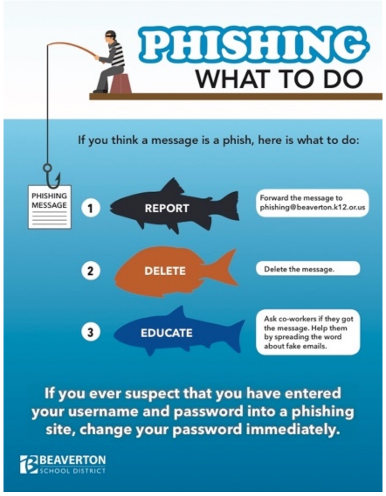

PHISHING
WHAT TO DO
If you think a message is a phish, here is what to do:
PHISHING MESSAGE
1
REPORT
Forward the message to phishing@beaverton.k12.or.us
2
DELETE
Delete the message.
3
EDUCATE
Ask co-workers if they got the message. Help them by spreading the word about fake emails.
If you ever suspect that you have entered your username and password into a phishing site, change your password immediately.
BEAVERTON SCHOOL DISTRICT

Figure 2: BSD Phishing Poster

In February of 2018, the IT department contracted with a security firm to assess the threat of phishing. The first phish was conducted in February 2018 and 983 staff members across the district provided their BSD usernames and passwords. The IT department then launched a staff awareness campaign with newsletter articles, a poster, and resources on the staff intranet. Additionally, IT created a specific email address where staff could forward any suspect email for evaluation. If a phishing email was submitted to our BSD phishing address, IT staff could scan emails across the system and proactively remove phishing emails before large numbers of staff could interact with the phish.

In June of 2018, we launched our second phish to assess progress. The number of staff members who provided both a username and password dropped to 604. Additionally, there were almost 1,000 submissions of the phishing email to the BSD phishing address. The number and speed with which staff submitted the phish to the phishing address would have alerted IT staff so they could respond quickly, had this been a real incident.

Staff education and training will continue throughout the 2018-19 school year to reduce the threat of username and password compromise through phishing. IT staff are currently evaluating software applications designed to monitor, detect and report suspicious activity from applications and network access.

[1] “The K-12 Cyber Incident Map.” K12 Cyber Incident Map, K12 Cybersecurity Resource Center, 5 Nov. 2018, k12cybersecure.com/map/.

Data Privacy

The Beaverton School District, like all school systems across the country, holds a wide range of data about students and families. This data is necessary for instruction, administration of the school district, and for state and federal reporting purposes.

With the addition of digital instructional resources, student data might also be held by third party applications and vendors. For example, there are a number of online resources used in the classroom for instruction and evaluation. The increased use of digital resources can make it more difficult for parents to know what information on their student is held by the District and if additional personally identifiable information is also contained in third party vendor systems.

The IT department is implementing two improvements on how the District provides student data privacy information to families and staff, and also creating common expectations for vendors working with student data.

The Beaverton School District is a member of the Student Data Privacy Consortium (SDPC). The SDPC is a national consortium of school districts that share information and best practices for providing parents with student data privacy information. Through the consortium, we recently created a public web portal listing Beaverton School District digital applications and the data fields they create and store. Staff, parents and community members will access the portal to view applications used in the district, vendor information, and the data collected and stored by vendors.

As part of our work with SDPC, we created a standard data privacy agreement for Oregon which is now part of our procurement process. This agreement requires the vendor to disclose exactly the types of student data used and stored by their application and details requirements such as their level of data security and notifications required if they experience a security breach. The agreement has been vetted for compliance with Oregon statutes and procurement processes, resulting in the ability for other school districts in Oregon to use. This will help drive adoption by vendors and provide a valuable resource for smaller districts without the ability to create a privacy agreement.

Enterprise Applications

Public Web Site Replacement

In the winter of 2017, the Beaverton School District received a complaint from the Office of Civil Rights regarding web accessibility for people with disabilities. Rather than trying to engineer accessibility features into the existing web sites, we are replacing the district and school public web sites with a new platform. The new web platform, FinalSite, was selected for accessibility compliance and ease of use for school and district content managers. The new district and school web sites are under construction and are expected to launch in summer of 2019.

Digital Equity

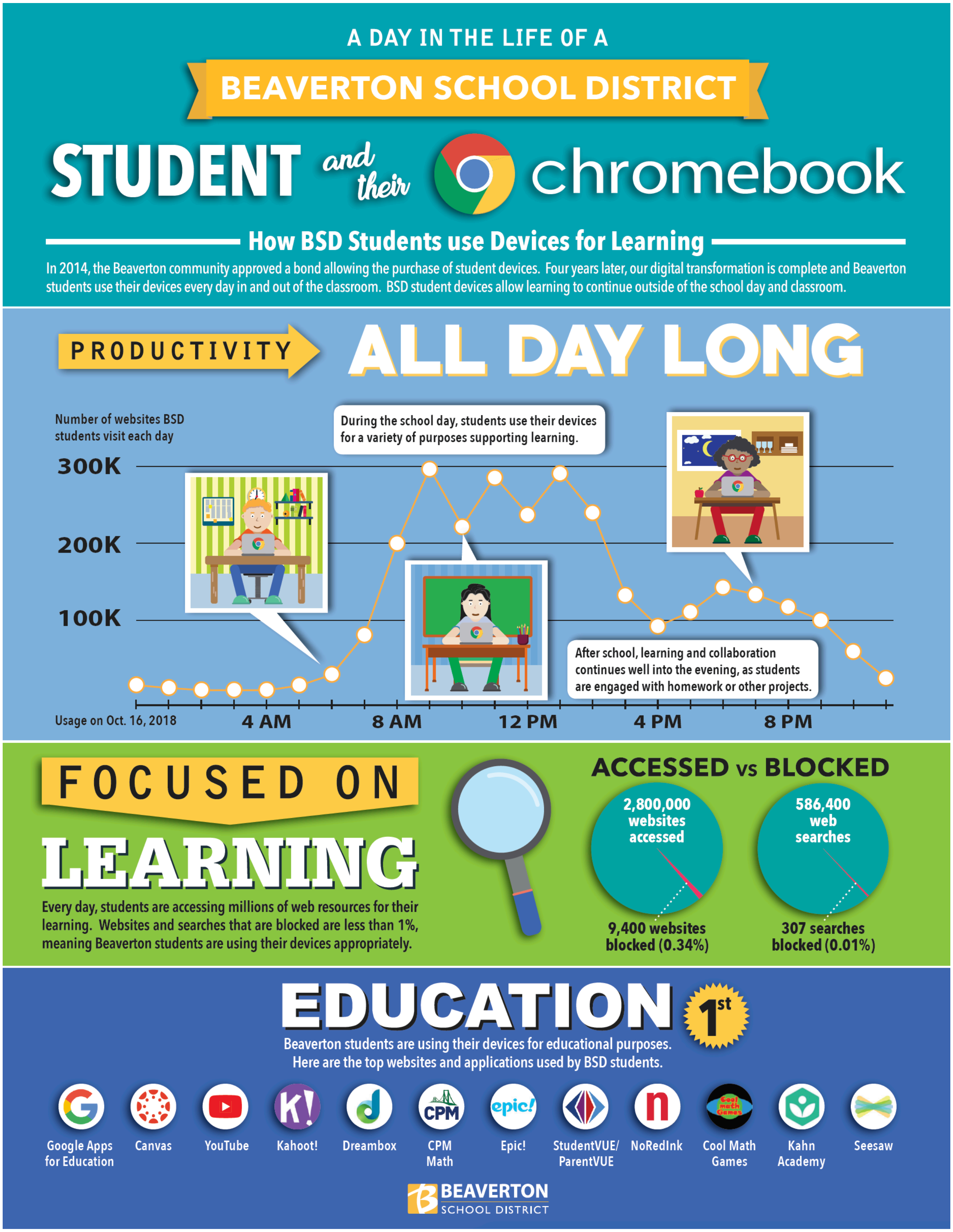
The Sprint 1Million Project is in the second year. Last year, we received 400 hotspots with free connectivity for high school students having limited or no internet access at home. In the summer of 2018, we were notified by Sprint that the Beaverton School District was one of three districts nationally that were exemplary in ensuring all devices were distributed quickly to students. As a result, while other districts experienced a decrease in the number of hotspots in year 2, the Beaverton School District will receive additional hotspots for students and we have been asked to lead a series of webinars around our model for hotspot distribution.

The 1Million Project is for students in high school who do not have internet access at home. We also have middle school students in the same situation and to support our middle school students, we were able to extend the Kajeet Closing the Homework Gap grant. This allowed purchase of 154 hotspot devices for middle school students lacking home internet access.

FutureReady Year 5 Planning

The 2014 bond provided student devices to support our digital transformation of teaching and learning. As a result of our infrastructure improvements, we were able to provide the devices ahead of schedule. We will soon be selecting the replacement of the first-round student devices. The FutureReady Advisory Team is evaluating needs and will be recommending replacement student devices in the coming months. Student devices will begin to be replaced in the 2019-20 school year.

Our web filters and other systems provide information on how students are using their devices and the results are encouraging. The top applications used by students on their devices are consistently applications associated with learning. Students visit millions of web sites each school day and only a very small fraction of those visits are to sites blocked by our filters. Finally, student access shows usage after-school and into the evening hours. This means that student learning, assisted by the devices, is beyond the walls of a classroom and the hours in a school day.



A DAY IN THE LIFE OF A

BEAVERTON SCHOOL DISTRICT

STUDENT and their chromebook

How BSD Students use Devices for Learning

In 2014, the Beaverton community approved a bond allowing the purchase of student devices. Four years later, our digital transformation is complete and Beaverton students use their devices every day in and out of the classroom. BSD student devices allow learning to continue outside of the school day and classroom.

PRODUCTIVITY ALL DAY LONG

During the school day, students use their devices for a variety of purposes supporting learning.

After school, learning and collaboration continues well into the evening, as students are engaged with homework or other projects.

FOCUSED ON LEARNING

Every day, students are accessing millions of web resources for their learning. Websites and searches that are blocked are less than 1%, meaning Beaverton students are using their devices appropriately.

ACCESSED vs BLOCKED

2,800,000 websites accessed
9,400 websites blocked (0.34%)
586,400 web searches
307 searches blocked (0.01%)

EDUCATION 1st

Beaverton students are using their devices for educational purposes. Here are the top websites and applications used by BSD students.

Google Apps for Education, Canvas, YouTube, Kahoot!, Dreambox, CPM Math, Epic!, StudentVUE/ ParentVUE, NoRedInk, Cool Math Games, Kahn Academy, Seesaw

BEAVERTON SCHOOL DISTRICT

Figure 3: Student Chromebook Use

Customer Service

During the 2017-18 school year, the IT Department developed a Standard of Customer Service, which outlined expectations for how IT staff will provide support to our users. Data from the 2016-17 staff survey showed that 66% of district staff rated the IT Department as 'High' in terms of customer service. IT staff developed a BSD IT Standard of Service, which articulates what staff and students can expect from IT in terms of support. Staff development then focused upon strategies to implement our BSD IT Standard of Service. Data from the 2017-18 staff survey showed the percentage of staff rating the IT Department as 'High' increased to 81%, a 15 percentage point gain from the prior year.

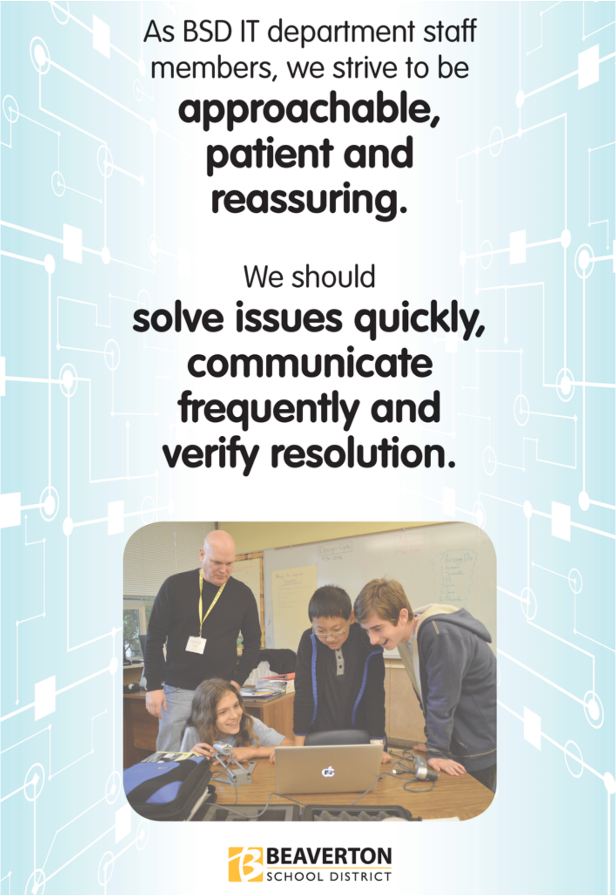

As BSD IT department staff members, we strive to be
approachable, patient and reassuring.
We should
solve issues quickly, communicate frequently and verify resolution.
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Figure 4: BD IT Standard of Service