



# Black Gold Regional Division No. 18 Technology Plan 2019-2022

## **Introduction**

Black Gold has a long history of supporting teachers in the infusion of technology. While we take pride in providing excellent technical support to our schools, our primary focus is always on student use and assisting teachers as they work with their students. To this end, Black Gold employs an Educational Technology Manager and Technology Integration Facilitators who work with our staff to assist them as they move forward with increasing technology integration. Our focus is on critical thinking skills, HOTS (analyze, evaluate and create), collaboration and personalization, based on the Alberta curriculum.

## **Purpose of the Plan**

Black Gold Regional Schools has developed and subsequently revised a three-year Technology Plan since its inception. It is reviewed annually to align with Board of Education and Alberta Education goals.

## **Planning Process**

The Technology Integration Planning Committee was formed in 1997. The committee meets at least twice a year to review and revise the Technology Plan and propose related actions based on the plan.

The development of the plan by the Technology Integration Planning Committee involves review of and changes to the previous plan. Additions and changes reflect the last two years of discussion focused on changing trends in technology in conjunction with strategic planning undertaken by the Board of Education.

All changes from the previous document are submitted to schools principals, through at the Superintendent's monthly meetings. This process is ongoing through a collaborative document.

## **Technology Vision, Beliefs and Goals**

The Board of Education's vision is to enable students to fulfill personal aspirations while they learn how to become lifelong learners and contributing members of society.

### ***Our Technology Vision: Learning and teaching in a digital world***

We envision classrooms where readily available digital tools and resources to engage learners and teachers in the collaborative pursuit of challenging and personalized learning experiences. Students will demonstrate ethically responsible use of digital tools reflective of today's global, digital world.

### ***Our Technology Beliefs: Focus on Engaged Thinkers and Ethical Citizens with an Entrepreneurial Spirit and personalization using digital resources throughout the curriculum.***

*"Ultimately, the power of technology should be harnessed to support innovation and discovery, not simply to aid teaching. We need to engage learners to use these new technologies as designers and creators of knowledge."*

Inspiring Education

Our belief is that digital technologies play an integral role in preparing students as future global citizens. Technology is used to engage students and make connections to life in and beyond the classroom. Digital resources used throughout the curriculum help students to successfully live, learn, work and communicate in our evolving cross-cultural digital society. The best use of digital tools and resources is to focus their application on higher order thinking skills and personalizing learning in a collaborative setting. All students as developing digital citizens should have ready access to available digital technologies in the course of their school work. All staff should have ready access to appropriate technologies and support in the use of digital tools and resources.

## **Educational Technology Leadership**

Our purpose as leaders is to work with all stakeholders to co-develop and maintain a shared vision and responsive culture for innovative teaching and learning that is enabled through technology by enhancing educational technology leadership capacity in ongoing trend areas:

- Increasing Embedded Technology Use Through Curriculum Change
- Personalizing to Help All Students Succeed - UDL / Student Choice
- Computing is both Ubiquitous and persuasive
- Connecting Schools to the Digital World Our Students Live In – A Networked World

We have identified goals in educational technology leadership for administrators:

- Develop a strong shared vision of technology use
- Communicate technology use expectations to staff regularly
- Shared Leadership: mobilize commitment from champions
- Lead by example: model technology use with students and staff
- Efficient and effective use of technology resources

Leadership indicators are tied to the Leadership Quality Standards as outlined in Alberta Education's nine competencies of the LQS document.

## **Teaching and Educational Technology**

Our purpose is the integration of technology to build on a foundation of **literacy** and **numeracy** to help students make sense of a rapidly changing world. Supporting students to build their conceptual understanding of the learning outcomes, taking a mental construct that is abstract, timeless and universal (concept) and transfer it to multiple situations. Concept-based learning leverages technology to bring “real world” meaning to content knowledge and skills. The goal of conceptual learning is to make the learning process visible and concrete, by turning facts into transferable understanding between subjects or ideas. Conceptual transfer occurs when students apply insights about the relationship among concepts to a new scenario. Conceptual understanding brings relevance and rigour to learning as it places an emphasis on higher-level thinking skills, such as analysis, synthesis, and evaluation, as students apply concepts to other contexts. Students will have opportunities to build an understanding of how knowledge has been constructed within a discipline or topic so they can go beyond rote and surface learning. This will challenge students to be actively involved in the development and explanation of their knowledge.

### ***Competencies***

Competencies are a lens of thinking that when combined with learning outcomes throughout a student's education provides teachers an opportunity to be intentional about developing the skills that our students need to effectively contribute to society. Students use and develop competencies when they encounter unfamiliar or challenging situations. Alberta's K- 12 curriculum promotes the development of

the following competencies:

- Critical Thinking
- Problem Solving
- Managing Information
- Creativity and Innovation
- Communication
- Collaboration
- Cultural and Global Citizenship
- Personal Growth and Well Being

### ***Personalization Indicators***

Personalization involves student choice thus providing multiple ways to engage students' interest and motivation. Information is presented, and students are able to demonstrate they have learned an outcome, in a variety of different ways; without developing specific curriculum activities for every student.

- Engaged Thinkers: Students will be critical thinkers and have the ability to use technology to learn, create and communicate.
- Ethical Citizens: Students will be empathetic, open minded and compassionate, able to work together with others as they contribute to their community.
- Entrepreneurial Spirits: Students will be creative in their solutions to problems, look for innovative solutions, and have confidence to make tough, but necessary decisions.

### ***Characteristics of Intrinsically Engaged Learners***

- Student sees the activity as personally meaningful.
- The student's level of interest is sufficiently high that he persists in the face of difficulty.
- The student finds the task sufficiently challenging that he believes he will accomplish something of worth by doing it.
- The student's emphasis is on growth, design process, iteration and improving
- The students will work with each other to support technology acquisition and learning of curriculum

### ***Collaboration Indicators***

Collaboration involves students working together toward a common goal—typically an intellectual endeavor that is creative in nature—by sharing knowledge, learning and building consensus. Collaboration does not require leadership and can sometimes bring better results through decentralization and egalitarianism. Collaboration may be either formal or informal.

- Team members actively participate in the task or project to accomplish a common goal
- Team members participate in decision-making
- Team adjusts to unforeseen circumstances
- Team members use their diversity to build strength

***The Manager of Educational Technology and Technology Integration Facilitators support teaching and learning by:***

- Working collaboratively with teachers in the development of personalized, collaborative, creative and critical thinking activities using vetted digital tools and media
- Supporting the use of chromebooks and other educational technology projects
- Supporting administrators in planning technology use
- Collaborating with other Learning Services personnel
- Maintaining the Black Gold Engaging Students website.

***Curricular Change***

Change in the pedagogical use of technology requires a systemic change in the way educational activities, projects and tools are used. In order to further encourage pedagogical technology change to coincide with curricular change various models of technology use will be leveraged. The SAMR model of technology use is an example that can help identify opportunities for change.

***Access to Technology***

All classrooms have access to technology through division supplied devices, new sets will be added if enrollment changes justify additional computers. Evergreening of devices will occur on a regular basis, with those computers, still operational, used to support BYOED initiatives.

***Bring Your Own Educational Device (BYOED)***

Bring Your Own Device is an initiative that encourages students (and staff) to use their own electronic devices in classrooms to personalize their learning. While all are encouraged to bring their own technology to school, BYOED programs have clear goals for student use within a classroom. All formal BYOED programs must meet specific criteria as outlined below. Each participating classroom will have a base of devices, approximately 20 (generally a mix of new and older devices) that are available to students who do not have a device, have forgotten it, require a device with a better keyboard, etc.

***BYOED School Requirements for Classroom/School-wide Implementations***

- A well articulated plan that integrates the BGRS goals for technology use.
- Student FAQ opportunity
- Parent Council Discussion
- Parent Letter/Survey
- Parent FAQ opportunity
- Signed Admirable Use Agreement for Each Student
- Additional (if any) technology requirements determined, including base devices

***Assistive Technology***

The Universal Design for Learning model encourages the use of digital tools and media to assist students by providing for multiple methods of representation, expression and engagement. While some tools

may be targeted towards students with physical, sensory, cognitive, speech, learning or behavioral special needs, many other students can be assisted in meeting their individual learning goals through the use of these tools. The Student Services Department, supported by the Technology Department, will match the appropriate assistive technology platforms and related tools to student needs. This ranges from personalizing learning through Google Apps for Education to specialized access, specialized software and specialized services to create meaningful and participatory access to learning. Student Services' role then is not only to diagnose and prescribe, but also to support teachers in their understanding of the use of "assistive" and emerging technologies in their classrooms with students who "need" assistive technologies.

### ***Cross Curricular Technologies***

Tools that can be used to cross curricular boundaries to engage learners in a variety of outcomes are encouraged and supported. Often these tools are specialized enough that schools will not deploy on their own. To that end, Educational Technology will employ a variety of educational tools that support these unique activities. This varies from hardware sets, shared among schools, to software activities. Possible technologies - BeeBot and ProBot robotics, Sphero, digital imaging, plotting, 3D printing, Raspberry Pi, minecraft.

## **Keeping Technology Current**

### **Evergreening: Student Computers**

Computers will be distributed as below. With current budgeting allocations, evergreening assumes a 5 year equipment life.

- Netbooks or Chromebooks for all grades, sets of 25 in grades 1 and 2, sets of 30 in grades 3 to 12.
- Schools will receive Chromebooks
- As budgeting allows a small number of Chromebooks (10 - 15) will be supplied yearly for Student Services to program pullout classes as identified by student services. These devices are not for general circulation.
- CTS/CTF computers consist of one lab per division 4 school for every 400 students as dictated by curriculum need.
- Cloud printers will be supplied at a rate of one for every 4 computer carts or group of 150 devices.

### **Evergreening: Network Infrastructure and Servers**

- Servers are replaced on an ongoing basis,
- Infrastructure for networking both wired and wireless, including associated equipment such as firewalls, switches, etc. is replaced on an ongoing basis.

### **Evergreening: Classroom Computers**

All classroom computers are generally replaced every 6 - 8 years. Associated peripherals such as

document cameras and printers are the responsibility of the school, as are the cost of parts necessary for any repair of any computer.

### **Surplus Equipment**

- Equipment purchased by a school and declared surplus will be available to other schools through the Technology Department at market value.
- Equipment declared surplus that is not needed by any school will be recycled, sold or donated
- Recycling of computer and network technology will be done through the Technology Department
- Sales and donations will be done through the technology department with monetary transactions handled by the Business Services Department.

### **Technology Fee**

For 2019-2020 school year the BGRD School Board approved a \$10 fee for division 1 and a \$20 fee for division 2, 3, and 4. These funds are not to be used for student devices, it is to cover software and technologies that the students have not had access to in the past, assistive technologies, creative software, writing assistance and feedback software and enrichment hardware such as virtual reality headsets. The fee will also be used to cover additional bandwidth and infrastructure cost for student access and BYOED.

### **Technology Support**

The Division maintains a Technology Department to offer support to school and Division personnel. This support includes:

- Planning and Consultation
- Purchasing
- Installation and Support
- Maintenance
- Professional Development

### **I.T. Staff**

- I.T. Manager
- I.T. Analyst
- I.T. Technicians

### **Service Management**

In order to facilitate an efficient use of system personnel, setup, troubleshooting and repairs are prioritized as follows:

- **Severity 1 – Critical System is Down:** WAN, LAN, Whole Lab, Internet, Firewall, E-Mail, filtering, servers and data backup; Office staff member cannot perform job; Regulatory or Legal Implications

- **Severity 2 – Teacher/Student Can Not Work - No Workaround Available:** Teacher Desktop PCs, classroom multimedia technologies connected to Teacher PCs, new staff/student accounts, special needs student assigned PCs; all copies of an important software program in a lab not working
- **Severity 3 – Some But Not Most Affected:** some hardware/software is not working in lab, carts, etc. but is working on all but a few machines.
- **Severity 4 - Workaround Available:** print to another printer; student/staff personally owned devices not connecting to wireless access, etc.
- **Severity 5 – New Install:** software and hardware, new initiatives and emerging technologies

All parts, other than for those related to servers/network infrastructure, are a school based expense.

### ***Purchasing***

There are several issues concerning technology infrastructure that have been identified in Black Gold. These include the large investment the Board has made in technology, the need to support the program in a cost-effective manner yet maintain an appropriate number of support personnel, legal concerns regarding unauthorized software, system needs, and Alberta Education requirements.

Guidelines established to address these concerns include:

- all hardware and software will be purchased either through, or with knowledge of, the Technology Department and will be supported based on system support standards as below;
- all donations (currently, used equipment is not accepted) will be made through the Technology Department and will be based on system standards;
- management of networked equipment and services should occur centrally;
- schools and departments must maintain an inventory of all software purchased;
- netbooks/chromebooks will be the preferred platform for student use purchases, unless specialized hardware/software is required and associated funding is allocated as necessary above the base purchase budget;

### ***Technology Department Support of BGRS Owned Devices***

	<i>Full Support</i>	<i>Managed Support</i>	<i>Security Support</i>	<i>Purchase Encryption Enabled</i>	<i>Public Network No Support</i>
<b>BGRS Windows</b>	X				
<b>BGRS Chromebooks</b>		X			
<b>BGRS Approved</b>			X		

SmartPhones					
BGRS Macs		X			
BGRS IOS		X			
BGRS Android			X		
BGRS USB Stick				X	
Non-BGRS					X

- **Full Support (When Purchased Through the Tech Dept.):** Inventoried; encrypt (staff devices), remote reboot to encryption password; BGRS image; troubleshooting; software installs; hardware repair
- **Managed Support (When Purchased Through the Tech Dept.):** Inventoried; no local data stored; revert to factory default if necessary; no local software installs; hardware repair
- **Security Support:** Inventoried; encrypt (staff devices); remote reboot to encryption password or remote wipe if possible; revert to factory/shipped OS software default if necessary; no troubleshooting; no software installs; no hardware repair
- **Purchase Encryption Enabled:** School or Department purchase and maintain an inventory of portable staff USB devices and ensure they are encrypted devices

All software not purchased by the division, including Operating Systems, and related updates on these systems, must be legally purchased by the school or department. All such purchases must be documented by the school or department and shared with the Technology Department as to which hardware they are associated with.

BGRS has moved to Google Apps for Education (GAFE) for all email, staff and students. Chromebooks are managed from the GAFE Admin panel and the GAFE Apps are now the main office tools for student use. Microsoft products are provided by a license through Alberta Education. Recommendations for student software are provided by the Technology Integration Facilitators, Student Services and school administrators. Web 2.0 software must be vetted for FOIP concerns. An Educational Technology Risk Assessment Framework is maintained by the Educational Technology Consultant. Other software will be installed on servers only after successful testing by the Technology Department, as part of the purchase process. All schools must maintain records of software purchases for audit purposes. Some access to install legally obtained software and/or digital materials locally is given to teachers on their own classroom computer or student netbooks. However, this software may be removed at any time as a computer is reimaged as part of the functional identity model. Software that has not been tested by the Technology Department should not be installed.

BGRS has a volume purchase plan with Apple Canada for hardware and software applications for MAC

and iOS devices. In order to obtain discount volumes for software purchases the apps may be pooled among schools, co-ordinated by CO, for iOS devices. All Apple purchases must come through CO in order to count as a BGRS device and gain Apple support.

## ***Networks***

All classrooms are wired back to wiring closets with at least one connection. All labs are wired. All offices are wired back to wiring closets with at least one connection. Additional wiring will be installed as necessary.

Standard secure wireless networks have been developed and integrated into the existing network as necessary to meet curricular and operational needs. All school sites have wireless access throughout the building and in classrooms. No other wireless networks are allowed or supported. Black Gold owned wireless portable devices are setup to connect to the full Black Gold network including servers. Shaw Go-WiFi has installed some antennas on school facilities but they are not associated with the BGRS network in any way.

Staff owned and student owned laptops and other portable devices, will be allowed to connect on a secure public Black Gold wireless network, with Internet access only. Staff and student owned laptops and other devices will not be supported by the Technology Department or the Division. Liability for loss, damage or theft of the device resides solely with the user. Access to files stored on the server is possible through a variety of methods.

Printing from personal devices using their BGRS GAFE account will be accommodated by providing one cloud based printer for every school. Additional printers are the financial responsibility of the school.

A SuperNet-based Wide Area Network has been established to facilitate administrative and student communications and research. All access is through a gateway at the Central Office in Nisku to allow for firewall protection and URL blocking, as well as efficient sharing of a high-speed line to the Internet. The network allows video conferencing and remote management of hardware as required.

Terminal server (thin-client) access over the Internet from outside the Black Gold network will be available to all staff members who use computers as part of their job requirements. Local thin client servers are being decommissioned for one centrally managed server. Remote printing is handled by a print portal service.

Student remote access to local files stored on the school server is available, as is access to their BGRS gShare Google account.

## ***Security***

All reasonable efforts will be made to maintain a secure network. Unfortunately, this will result in some constraints to computer use. Non-Black Gold equipment is restricted as outlined above. All users, both students and staff are expected to sign and abide by the Division Admirable Use Agreement. Student agreements are maintained by the school, staff agreements by the Human Resources department.

Minimum requirements for passwords are set and enforced. Access to staff folders is restricted to owners other than, as required, by the Technology Department for maintenance, troubleshooting or forensic work. Local student folders are accessible by teaching staff, GAFE folders are not accessible by teaching staff.

All Black Gold laptops and netbooks with the possibility of containing student data will be encrypted in case of loss or theft. School principals and Central Office Department Heads should inform the Technology Department of any such portable computers or usb data storage devices to arrange for encryption.

Removing laptops from Black Gold property must be approved by the school principal. Laptops and other portable devices, should never be left unattended, even in a locked vehicle.

Any device, staff or student, that is lost or stolen must be reported immediately to the BGRS FOIP Coordinator and the I.T. Manager.

Black Gold has an Administrative Procedures Manual which includes more detailed expectations of staff, as required by Alberta Education.

BGRS has implemented an LDAP server to manage usernames and passwords. All users will have one username and password for all services and the password will be changed on an annual basis. A password self service portal will be provided.

When staff transfer schools or leave the division they will work with school administrators to transfer any shared documents owned by the staff member prior to leaving the division. File management policy, education.

### ***Videoconferencing***

Videoconferencing may be used for curricular, administrative and/or professional development needs. Schools are responsible for arranging for the booking of their own equipment. The Technology Department will establish procedures for shared resources and access outside of Black Gold.

### ***Storage***

In order to prevent unexpected server shutdowns, file space must be allocated and protected. Folders for regular work will be limited in size for both staff and students. A separate multimedia drive may be available as necessary to store large projects. Files on this drive will be removed at the end of a semester or school year to accommodate subsequent classes. If the main server file space is not adequate to prevent outages, schools may purchase additional hard drive space through the Technology Department, or restrictions on file space will be implemented. Offsite backups of files crucial to Division operation will be maintained by the Technology Department. Network storage areas are the property of the Division. Network administrators may review files and communications to ensure system integrity and responsible use of resources.

Cloud services such as our GAFE environment will be backed up when services are reasonably available such as a secondary cloud service or internal backup. A private cloud based storage solution will be investigated to centralize data storage. In addition to centralized storage a move to a document management system will be phased in over the next few years for critical documents/data.

## **Educational Management and Administration**

### ***Student Cumulative Files***

In order to meet the 2020 Alberta Education requirements of digitized student cumulative files BGRD is deploying a process to organize and scan current student CUM files

### ***Student Records***

PowerSchool is the program utilized by BGRS for maintaining student related data. Student database information shall be maintained in a standard manner, with data entry the responsibility of each school. The goal is that all data is entered just once by the individual responsible.

Databases are accessible by all the appropriate staff personnel with different levels of authorization in terms of information retrieval and maintenance. PowerSchool is tied into Alberta Education's PASI student information system.

Grades, attendance and assignments in PowerSchool may be shared with parents and students.

### ***Libraries/Learning Commons***

Destiny is the centralized library circulation program used in BGRS. The use of e-books and e-texts is within the context of the Destiny library system. Media storage has also been added to the destiny server to accommodate media purchased by schools.

### ***E-Mail***

Google Mail, with the Black Gold Google Apps domain, is the email platform used for staff and student email accounts in BGRS.

### ***Non-Public Publishing***

Black Gold maintains an intranet site and various wikis for online manuals and resources for staff.

## ***Engaging with Parents, School Communities and the Digital World***

### ***Parent Communication***

Electronic grade books, attendance and assignment information available in PowerSchool will be shared with parents. Secondary schools will use this form of parent communication.

Web 2.0 based means of communicating with parents, including blogs and wikis, are encouraged.

### ***Public Publishing including Web 2.0 Tools***

Web Publishing is a powerful tool for students, teachers and administrators. All members of the school community may publish documents online for viewing on the Internet. Various Black Gold sites are also available to do this including wikis, blogs, social learning and course management (Moodle) sites.

Publishing of documents is governed by the following guidelines:

1. Private information concerning students or staff may not be published in any form.
  - This includes but is not limited to any information protected under the Freedom of Information and Privacy Protection Act. (FOIPP)
  - Photographs of students and student work may only be published if an appropriate general consent form is signed. The form must be signed by the student's legal guardian.
  - Home addresses, home phone numbers or other contact information for students or staff may not be published.
  - Web 2.0 programs used by students must be vetted for FOIP concerns
2. All materials must be published in accordance with all existing copyright legislation.
  - The use of original or royalty-free material is encouraged.
  - If copyrighted material must be used, permissions of the Canadian Copyright Act must be followed.
3. Web site content posted on Black Gold Regional School's servers must be of an educational or administrative nature.
  - Web site content that promotes products or services is not permitted
  - "Vanity" sites are not permitted.
4. The author of a web site is responsible for maintaining that site.
  - Sites are to be kept current and accurate.

### ***Public Publishing Responsibilities***

Black Gold has moved to bring a common look and feel to all school and division websites. All schools will maintain and keep current the web pages to provide information to current and potential parents and students.

Blogs and Wikis allow for collaboration and public publishing of student materials. All permissions that would apply to posting on a website apply to these areas as well. Passwords can restrict access and should be used in a manner that would mirror the normal access to student generated material in a classroom. Use of non-BGRS sites should include a review by the teacher of terms and conditions of use as well information required for student use in order that it meets guidelines as outlined above.

### ***Evaluation and Reporting of This Plan***

The rapid change of technology and curriculum will lead to frequent revisions of the plan. The plan will

be continuously monitored and reviewed annually.

Several times over the course of each year, the Technology Integration Planning Committee will meet to evaluate the following:

- Were the goals associated with the BGRS Strategic Plan of the previous year met?
- Are curriculum goals as mandated by Alberta Education being met?
- What new goals for the BGRS Strategic Plan need to be added?
- What goals for the BGRS Strategic Plan need to be modified?
- What if anything needs to be changed in the overall vision and focus for technology use?

## **Technology Integration Planning Committee Members (2018/19)**

(Positions/locations as of Fall 2018)

Robyn Steed	Trustee	Board of Education
Sean Flanagan	Principal	Ecole Leduc Jr. High School
Raymond Cable	Principal	West Haven Public School
Dan Lake	Principal	Calmar Secondary School
Dave Holbrow	Assistant Principal	Leduc Composite High School
Tessa Arends	Teacher	Caledonia Park School
Mikayla Ryll	Teacher	Ecole Dansereau Meadows School
Carolyn Anderson	Tech. Int. Facilitator	Central Office
Barry Scheelar	I.T. Manager	Central Office
Bill Romanchuk	Associate Superintendent	Central Office
Ray McCubbing	Ed. Tech Manager	Central Office