

## **Cass City Public Schools**

**District Code: 79030  
4868 N Seeger Street  
Cass City, MI 48726  
989-872-2200**

# **District Technology Plan**

**July 1, 2009 – June 30, 2012**

<http://www.casscityschools.org>

click Departments, Technology and Computer Services

**Tuscola Intermediate School District**



**Contact Information:  
See page three**

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## Contact Information

Lyle Severance  
Technology Director  
4868 N. Seeger St  
Cass City, MI 48726  
Phone: 989-912-1843  
Fax: 989-872-5015  
lseverance@casscity.k12.mi.us

## District Mission Statement

All School personnel will accept the responsibility to provide the opportunity for all students to be productive in a global society.

## District Technology Mission Statement

Prepare students for responsible use of appropriate technology for communication, problem solving, integration, evaluation and synthesis of all subject area skills for the 21<sup>st</sup> Century.

## Demographics

Cass City Public Schools includes an area of approximately 200 square miles. The district is considered rural in nature and is comprised of parts of Huron, Sanilac and Tuscola Counties, located in the Thumb of Michigan. The population center for the district is the village of Cass City. The school district has been in existence for well over 100 years. As a rural district, Cass City Public Schools is primarily a middle class farming community with some medium and mostly small businesses within the Cass City village limits and the surrounding community. During the 2008/2009 school year, the number of students eligible for the Free and Reduced National School Lunch Program was approximately 45%.

The district currently operates one early childhood building, one elementary building, one middle school building and one high school building. The district student population has remained between the mid-1,300s and the mid-1,400s over the past 15 years.

The approximately 200 staff members of the Cass City Public School District provide a friendly, caring and safe environment for its students. As partners in education with parents and community members, we look forward to the future and remain committed to providing outstanding educational programs for the students we serve.

## Buildings

Early Childhood  
Education Center  
6627 Rose Street  
Cass City, MI 48726  
989-872-2158

Campbell Elementary School  
6627 Rose Street  
Cass City, MI 48726  
989-872-2158

Cass City Middle School  
4805 Ale Street  
Cass City, MI 48726  
989-872-4397

Cass City High School  
4868 N. Seeger St.  
Cass City, MI 48726  
989-872-2148

# Vision and Goals

## Background of your technology planning initiative

Our first technology plan was written in 1992, and was initially approved by the School Board in 1994. We have been unofficially updating it since then. Due to changes in technology, district goals, staff knowledge, and governmental mandates, it was time to update our plan.

## Cass City Technology Planning Team 2009

| Name              | Position                     |
|-------------------|------------------------------|
| • Linda Bailey    | Middle School Teacher        |
| • Judy Brown      | High School Teacher          |
| • Brett Davis     | IT Technician                |
| • Donna Emerson   | Elementary Media Specialist  |
| • Bill Hartzell   | High School Teacher          |
| • Tracey Jaworski | Elementary Teacher           |
| • Deb Peruski     | Middle School Teacher        |
| • Lyle Severance  | District Technology Director |
| • Kate VanAuken   | Parent / Community Member    |
| • Linda Volz      | High School Teacher          |

## District Technology Vision:

Develop tools and resources for staff to effectively integrate technology into the everyday classroom experience, creating a collaborative bond between technology and learning.

## Goals of Technology Plan

Major goals of the technology plan (related to long-term vision and school/district mission):

1. Integrate technology into all subject areas.
2. Develop progressive learners and communicators who can effectively utilize technology.
3. Promote responsible and ethical use of technology.

## 1. Integrate technology into all subject areas.

**Rationale:** Technology will become an integral part of how the classroom functions to accurately represent real world situations.

**Strategies:**

- Technology Literacy Curriculum projects
- Adaptation and tracking of Technology Literacy Curriculum benchmarks for special education students
- Integration method templates and instructions for projects

**Status:** In-progress

**Measurement:** Administrator evaluation of teacher, observation, survey response and technology rubrics

**Responsibility:** Administrators, teachers and technology advisory committee and professional development teams

**Funding & Resources:** General & Bond funding.

### Timeline

| 2009-2010   | 2010-2011   | 2011-2012  |
|---|---|--|
| <ul style="list-style-type: none"> <li>• Lesson plans that integrate the technology Literacy Curriculum into all curriculum areas will be completed by grade level teams.</li> <li>• All teachers will design technology into lesson plans to augment the learning process</li> </ul> | <ul style="list-style-type: none"> <li>• All teachers will further design technology into lesson plans to augment the learning process</li> <li>• Technology Literacy Curriculum adaptations will be developed for special education students with documented progress that follows students K-12.</li> </ul> | <ul style="list-style-type: none"> <li>• All teachers will have technology designed into lesson plans to augment the learning process</li> </ul> |

## 2. Develop progressive learners and communicators who can effectively utilize technology.

**Rationale:** To be productive and competitive in the 21st Century, technology standards will help students adapt to an ever-changing and problem solving society.

**Strategies:**

- Develop courses with online content for the high school and middle school.
- Continuing to utilize community members to reinforce what students are learning in technology regarding career opportunities and requirements.
- To have students use a variety of telecommunication tools.

**Status:** In progress

### Timeline

| 2009-2010  | 2010-2011   | 2011-2012   |
|--|---|---|
| <ul style="list-style-type: none"> <li>• Develop courses with online content using Web 2.0 tools</li> <li>• Utilize school provided student email accounts.</li> <li>• Community members and various programs demonstrate ways on how technology and our world are related.</li> </ul> | <ul style="list-style-type: none"> <li>• Utilize internally developed courses with online content using Web 2.0 tools</li> <li>• Increase utilization of school provided student email accounts.</li> <li>• Community members and various programs demonstrate ways on how technology and our world are related.</li> </ul> | <ul style="list-style-type: none"> <li>• Utilize internally developed courses with online content using Web 2.0 tools</li> <li>• Increase utilization of school provided student email accounts.</li> <li>• Community members and various programs demonstrate ways on how technology and our world are related.</li> </ul> |

### 3. Promote responsible and ethical use of technology.

**Rationale:** To protect and to ensure the safety of our students. Current employment trends require responsible and ethical employees.

**Strategies:**

- Reinforce the adopted six pillars of Character Counts.
- Review the Acceptable Use Policy of the school district.
- Students use age appropriate citing of sources for electronic reports.
- Lesson design incorporated into curriculum that reinforces ethical and safe use of technology.

**Status:** In progress.

**Measurement:** Teacher and Technology Coordinator monitoring and observing student behavior and output.

**Responsibility:** Administrators, teachers and Technology Coordinator

**Funding & Resources:** General funding from school district

#### Timeline

| 2009-2010  | 2010-2011   | 2011-2012   |
|--|---|---|
| <ul style="list-style-type: none"><li>• Utilize anti-plagiarism software</li><li>• Implement Acceptable Use Policy revision</li><li>• Parent information regarding internet monitoring.</li><li>• Lessons involving character and ethical problem solving.</li></ul> | <ul style="list-style-type: none"><li>• Ongoing and increased emphasis with lessons and parent involvement.</li></ul> | <ul style="list-style-type: none"><li>• Ongoing and increased emphasis with lessons and parent involvement.</li></ul> |

# Curriculum

## **A. Goals and strategies, aligned with state and national standards, for using telecommunications technology to improve teaching and learning.**

Establish technology committees of select individuals, who are responsible for the use of technology-based resources within each school. Goals of each committee are:

- to determine the needs and types of technology the district will require to achieve its technological mission
- to include technologies in the day-to-day teaching of students
- to discuss new innovations and programs
- to assist in the training of the district's staff

We have identified and detailed our Technology and Curriculum Goals and Grade Level Responsibilities in Appendixes I, II, III, and IV. We also have the K-8 METS Special Education Checklist in Appendix VIII.

**Staff responsible:** Technology Director, building level educators, administration

**Status:** ongoing

## **B. Strategies that are based in research and that integrate technology into curricula and instruction for purposes of improving student academic achievement and a timeline for this integration.**

It is understood that this plan will be a process for staff and student success. This will facilitate greater success in meeting the goals set forth by "No Child Left Behind" (NCLB), "Education Yes", "Adequate Yearly Process" (AYP), state benchmarks and other educational initiatives. See Appendix V.

**Staff responsible:** Technology Director, building level educators, building administrators

**Status:** ongoing

## **C. Strategies for the delivery of specialized or rigorous courses and curricula through the use of technology, including distance-learning technologies.**

Cass City Public Schools believes that we must prepare our students for the 21<sup>st</sup> century and an ever-changing society. We will provide rigorous courses and curriculum that exposes and encourages students to use various forms of technology. Currently the Internet is used at all grade levels. Students research various topics and present what they have learned in different formats. (i.e.: PowerPoint presentation, fliers, and brochures) On-line classes are being offered at the high school level. Teachers are also using multimedia content from United Streaming in their classrooms. Refer to the Goals of Technology Plan pgs 4-6, where we have laid out how we will continue to provide a challenging curriculum.

**D. Strategies to promote parental involvement and to increase communication with parents, including a description of how parents will be informed of the technology to be used with students.**

- Cass City Public Schools believes the community is a very important part of the educational process; therefore, the District's Technology Plan will be disseminated to the community by using the following:
  - District's web site
  - Local newspaper(s)
  - Mailings
  - Freshmen orientation
  - Open houses
  - Parent-Teacher conferences
  - School board meetings
  - Technology Committee meetings
  
- District-Parent communication will be achieved through the following means:
  - Skyward Family Access
  - E-mail
  - Teachers' web pages
  - Mailings
  - District's web site
  - Open houses
  - Parent-Teacher conferences
  - School board meetings
  - Technology Committee meetings
  
- Establish a District Technology Committee  
The Technology Director will assemble a District Technology Committee. Members will include:
  - Technology Director
  - Teachers representing each building (elementary, middle school, high school)
  - Local business representative(s)
  - Building administrator(s)
  - Parents
  - School board member(s)
  - Students
  - Members of the Technology Planning Team on page 4

This committee's responsibilities will be:

- to discuss how technology in the district can be integrated into the K-12 curriculum
- to promote and enhance the learning process
- to encourage collaboration with other classrooms/outside sources via the Internet
- to review the use of technologies within the classroom
- to suggest ways in which teachers can better utilize advances in technology that would enrich the classroom environment
- review Technology Planning Team membership to ensure all stakeholders are active members of the committee
- communicate its vision to the Technology Planning Team for integration into the District Technology Plan.

**E. Strategies for developing the program, where applicable, in collaboration with adult literacy service providers.**

Currently Cass City Public Schools has Adult Education and GED programs offered through the Tuscola County Intermediate School District. Many lifelong learning classes are also offered through Tuscola, Huron and Sanilac Intermediate School Districts, and Rawson Memorial Library. Some of the classes are Adobe Photoshop, HTML, Microsoft Access, Excel, and Publisher and QuickBooks Pro Basics. Cass City Public Schools will continue to encourage students to utilize these resources to further their learning.

Cass City Public Schools will continue to welcome collaboration with colleges and universities in research and other endeavors. Some of the universities that the district has collaborated with in the last three years include Davenport University, Saginaw Valley State University, Baker College, St. Clair Community College, and Delta College.

## Professional Development

Over the past several years, technology has made its way into all aspects of the educational environment. All staff members need to be taught how to effectively use and integrate technology into their specific areas, classrooms and daily operations. Cass City Public Schools feels that technology professional development is an on-going part of the technology plan.

All staff members have different levels of technology proficiency. Cass City Public Schools acknowledge these differences and believes that professional development programs should be aware of the different levels of proficiency among staff and develop strategies to enhance those levels.

In order to understand and assess individual needs and differences, each staff member will be asked to complete a survey. Future professional development days will be planned around the identified needs of the staff. The survey will be re-administered at the end of the year to see if staff has gained confidence in their technology skills. See Appendix VI.

Professional Development will set the groundwork for integration of technology into the curriculum rather than focusing on development of skills. Various state and national standards websites will be accessed to address technology standards and competencies for teachers, administrators and other support staff. (<http://techplan.org>)

| <b>Action</b>  | <b>Responsible Party</b>          | <b>Date</b> |
|--|-----------------------------------|-------------|
| Staff completes pre-assessment   | Technology Director               | Spring 2009 |
| Professional development offerings are designed based on staff needs   | District Technology/PD Committees | Fall 2009   |
| Professional development opportunities offered and evaluated           | District Technology/PD Committees | 2009-2010   |
| Staff completes assessment   | Technology Director               | Spring 2010 |
| Professional development offerings are redesigned based on staff needs | District Technology/PD Committees | Fall 2010   |
| Professional development opportunities offered and reevaluated         | District Technology/PD Committees | 2010-2011   |
| Staff completes assessment   | Technology Director               | Spring 2011 |
| Professional development offerings are redesigned based on staff needs | District Technology/PD Committees | Fall 2011   |
| Professional development opportunities offered and reevaluated         | District Technology/PD Committees | 2011-2012   |
| Staff completes assessment   | Technology Director               | Spring 2012 |

## Supporting Resources

The Cass City School District will provide services and resources to facilitate successful and effective use of technology. These resources will be designed to support the entire technology program.

- REMC membership
- District Technology Plan and policy
- ISD support
- United Streaming educational multimedia
- [www.learnport.org](http://www.learnport.org) for continuing education credits
- [www.miclimb.org](http://www.miclimb.org) connection with integrated curriculum lesson plans
- Professional magazines at Media centers (Classroom Connect, Web Feet, Middle School Journal)
- Wider offering and higher utilization of technology involved classes
- Data bank of lesson plans by curriculum on a shared directory
- Data bank of web sites, as identified on District website, to assist teachers
- Develop grade level staff to act as resources
- On-line catalog listing links to web sites for teachers and students

# Infrastructure, Hardware, Technical Support and Software

## Infrastructure Needs/Technical Specification, and Design

Cass City Public Schools has approximately 650 desktop computers all running Windows XP Pro. Across the district we have eight computer labs with at least 30 PCs and three media centers with 21 to 30 PCs. In addition, each classroom has one to ten computer stations that are used for classroom instruction, taking attendance, communicating via email, etc. The District is using Microsoft Windows Server 2003 or 2008 on all servers. To keep current on technology and to maintain the most cost effective level of productivity, workstations are upgraded as needed and replaced after 5 years of use. See our timeline under Funding and Budget for a forecast of workstation/server upgrades.

The Cass City Public Schools network is 100 Mbps switched at the building level with a many 100 Mbps switches being used to provide extra drops in classrooms. 1Gbps switched fiber optic lines connect each building to our main data center with our heaviest load servers having 1Gbps connections to our core switch. Our networking equipment is primarily HP. For additional network functionality and mobility, we also are planning for a wireless presence in all school buildings. See WAN Diagram – Appendix VII.

The District provides telephones with local and long distance service to administrators, office & support staff, and every classroom to facilitate business and also to provide communication during an emergency situation. Teachers also use telephones to communicate with parents and students to further facilitate the educational process. Some administrators and support staff also are provided cell phones to further facilitate their job functions.

Staff and teachers also run several software packages for directly educating students as well as supporting the educational process and the operations of the buildings. A list of some of the software packages in use follows:

- Skyward Student & Finance
- Microsoft Office XP
- Microsoft Exchange/Outlook
- Taylor Elitevision
- Accelerated Reading & Math
- Scholastic Reading Counts!
- Inspiration
- Type to Learn Jr.
- Neighborhood Map Machine
- Print Shop
- Kid Pix 4

The IT Department of Cass City Public Schools consists of the Technology Director and IT Technician. All support issues are entered by users in our automated Help Desk software.

## Increased Access

The District Technology Committee will explore opportunities for after school access to the District's technology resources. The District currently uses Assistive Technologies Software to provide special needs students access to technology benefits and opportunities via voice and interactive processes.

# Funding and Budget

## Budget and Timeline

Timeline and budget covering the acquisition, implementation, interoperability provisions, maintenance, and professional development related to the use of technology to improve student academic achievement.

### EDUCATIONAL TECHNOLOGY PLAN BUDGET

| LINE ITEMS                     | YEAR 1              | YEAR 2              | YEAR 3              |
|--------------------------------|---------------------|---------------------|---------------------|
|                                | 2009-2010           | 2010-2011           | 2011-2012           |
| <b><u>Funding Sources:</u></b> |                     |                     |                     |
| General Funding                | \$210,830.00        | \$210,830.00        | \$210,830.00        |
| Bond Funding                   | \$650,000.00        | \$165,000.00        | \$0.00              |
| E-rate Funding                 | \$10,000.00         | \$10,000.00         | \$10,000.00         |
| <b>Total Funding Sources:</b>  | <b>\$870,830.00</b> | <b>\$385,830.00</b> | <b>\$220,830.00</b> |
| <b><u>Expenditures:</u></b>    |                     |                     |                     |
| Communication-Phone/Fax        | \$10,000.00         | \$10,000.00         | \$10,000.00         |
| Computer Supplies/Software     | \$52,000.00         | \$52,000.00         | \$52,000.00         |
| Student Email Accounts         | \$2,100.00          | \$2,100.00          | \$2,100.00          |
| Repair Equip./Maintenance      | \$3,000.00          | \$3,000.00          | \$3,000.00          |
| Hardware Upgrades              | \$650,000.00        | \$165,000.00        | \$70,000.00         |
| Internet and Filtering         | \$3,650.00          | \$3,650.00          | \$3,650.00          |
| Subscriptions                  | \$80.00             | \$80.00             | \$80.00             |
| PD - Inhouse                   | \$0.00              | \$0.00              | \$0.00              |
| Technology Staffing            | \$140,000.00        | \$140,000.00        | \$140,000.00        |
| <b>Total Expenditures:</b>     | <b>\$860,830.00</b> | <b>\$375,830.00</b> | <b>\$280,830.00</b> |

## **Coordination of Resources**

Cass City Public Schools monitors grant funding opportunities and seeks grant funding whenever possible.

We also plan to continue use of our established Internet connection through Tuscola ISD. This service is provided as a consortium of the ISD and several local Districts. CIPA compliant filtering of web content and SPAM/virus filtering of email is also accomplished at the ISD as a part of this relationship.

## **Additional Technology Funding**

### **Title I Funds**

Building level expenditures for improving basic programs

- These funds may be used by a school, in part, to educate the targeted Title I students. Some of the funds may be used to purchase technology to help meet this objective.

### **Bond Funds**

Funds from a Bond Extension that was passed in May 2008 is being used to upgrade computers, servers, and infrastructure.

### **E-Rate Funds**

Money from this Federal Program is currently used to defray costs in the areas listed below. This makes acquiring many of these capabilities possible. It also generates funds for supporting district technology goals. Currently dollars are used for the following:

- Telecommunications
  - Local Phone Service
  - Long Distance
  - Cellular
- Student Email Accounts

# Monitoring and Evaluation

Strategies that the district will use to evaluate the extent to which activities are effective in integrating technology into curricula and instruction, increasing the ability of teacher to teach, and enabling students to reach challenging state and national academic standards.

## Evaluation

The District Tech Committee will meet at least quarterly to evaluate the District's performance and progression regarding the Technology Plan including:

- Reviewing results of the Teacher Survey
- Making recommendations for professional development opportunities
- Reviewing progress towards goals

The main objective of the District Technology Committee's meetings will be to conduct reviews of the District's technology goals as outlined in the Technology Plan. Goals will be identified as met, unmet, or future and a report will be posted to the District website. Strategies will then be developed to address the unmet goals. The Technology Plan will then be updated with the updated strategies as well as other committee recommendations.

# Appendix I

## Kindergarten - 4th Grade Michigan Technology Benchmarks & Grade Level Responsibility

| Standards  | By the end of<br>Grade 2nd  | K | 1st | 2nd | Responsibility                                       |
|--|---|---|-----|-----|--|
| <b>1. Basic Operations and Concepts.</b><br><br>a. Students demonstrate a sound understanding of the nature and operation of technology systems. | 1. Students understand that people use many types of technologies in their daily lives (e.g., computers, cameras, audio/video players, phones, televisions).      | X | X   | X   | Classroom Teacher                                    |
|  | 2. Students identify common uses of technology found in daily life.   | X | X   | X   | Classroom Teacher                                    |
|  | 3. Students recognize, name, and label the major hardware components in a computer system (e.g., computer, monitor, keyboard, mouse, and printer).                | X | X   | X   | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
|  | 4. Students identify the functions of the major hardware components in a computer system  | X | X   | X   | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
|  | 5. Students discuss the basic care of computer hardware and various media types (e.g., diskettes, CDs, DVDs, videotapes).   | X | X   | X   | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
|  | 6. Students proofread and edit their writing using appropriate resources including dictionaries and a class developed checklist both individually and as a group. |   |     |     | X  |
| b. Students are proficient in the use of technology.   | 1. Students use various age-appropriate technologies for gathering information (e.g., dictionaries, encyclopedias, audio/video players, phones, web resources).   |   | X   | X   | Classroom Teacher                                    |
|  | 2. Students use a variety of age-appropriate technologies for sharing information (e.g., drawing a picture, writing a story).                                     | X | X   | X   | Classroom Teacher<br>Lab Teacher                     |
|  | 3. Students recognize the functions of basic file menu commands (e.g., new, open, close, save, print  |   | X   | X   |  |

| <b>Standards</b>  | <b>By the end of<br/>Grade 2nd</b>  | <b>K</b> | <b>1st</b> | <b>2nd</b> | <b>Responsibility</b>                                |
|---|---|----------|------------|------------|--|
| <b>2. Social, ethical, and human issues.</b><br>a. Students understand the ethical, cultural, and societal issues related to technology.              | 1. Students identify common uses of information and communication technologies.   | X        | X          | X          | Classroom Teacher                                    |
|   | 2. Students discuss advantages and disadvantages of using technology.   |          |            | X          | Classroom Teacher                                    |
| b. Students practice responsible use of technology systems, information, and software.  | 1. Students recognize that using a password helps protect the privacy of information.   |          | X          | X          | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
|   | 2. Students discuss scenarios describing acceptable and unacceptable uses of age-appropriate technology (e.g., computers, phones, 911, internet, email) at home or at school.   | X        | X          | X          | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
|   | 3. Students discuss the consequences of irresponsible uses of technology resources at home or at school   | X        | X          | X          | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
| c. Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.     | 1. Students understand that technology is a tool to help them complete a task.  | X        | X          | X          | Classroom Teacher                                    |
|   | 2. Students understand that technology is a source of information, learning and entertainment.  | X        | X          | X          | Classroom Teacher<br>Media Specialist                |
|   | 3. Students can identify places in the community where one can access technology  | X        | X          | X          | Classroom Teacher                                    |
|   |   |          |            |            |  |
| <b>3. Technology productivity tools.</b><br>a. Students use technology tools to enhance learning, increase productivity, and promote creativity.      | 1. Students know how to use a variety of productivity software (e.g., word processors, drawing tools, presentation software) to convey ideas and illustrate concepts.   |          | X          | X          | Classroom Teacher<br>Media Specialist                |
|   | 2. Students will be able to recognize the best type of productivity software to use for a certain age-appropriate tasks (e.g., word-processing, drawing, web browsing).   |          |            | X          | Classroom Teacher                                    |
| b. Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works. | 1. Students are aware of how to work with others when using technology tools (e.g., word processors, drawing tools, presentation software) to convey ideas or illustrate simple concepts relating to a specified project. |          | X          | X          | Classroom Teacher                                    |

| Standards   | By the end of<br>Grade 2nd  | K | 1st | 2nd | Responsibility   |
|---|---|---|-----|-----|--|
| <b>4. Technology communications tools</b><br>a. Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences. | 1. Students will identify procedures for safely using basic telecommunication tools (e.g., e-mail, phones) with assistance from teachers, parents, or student partners.   | X | X   | X   | Classroom Teacher<br><br>Media Specialist<br><br>Lab Teacher |
| b. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.  | 1. Students know how to use age-appropriate media (e.g., presentation software, newsletters, word processors) to communicate ideas to classmates, families, and others.   |   | X   | X   | Classroom Teacher  |
|   | 2. Students know how to select media formats-appropriate media (e.g., text, graphics, photos, and video) with assistance from teachers, parents, or student partners, to communicate and share ideas to classmates, families, and others. |   |     | X   | Classroom Teacher  |
|   |   |   |     |     |  |
| <b>5. Technology research tools</b><br>a. Students use technology to locate, evaluate, and collect information from a variety of sources.                       | 1. Students know how to recognize the Web browser and associate it with accessing resources on the internet   |   | X   | X   | Classroom Teacher<br>Media Specialist                        |
|   | 2. Students will use a variety of technology resources (e.g., CD-ROMs, DVDs, search engines, websites) to locate or collect.  |   |     | X   | Classroom Teacher<br>Media Specialist                        |
| b. Students use technology tools to process data and report results.  | 1. Students will interpret simple information from existing age-appropriate electronic databases (e.g., dictionaries, encyclopedias, spreadsheets) with assistance from teachers, parents, or student partners                            |   |     | X   | Classroom Teacher  |
| c. Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks.                         | 1. Students can provide a rationale for choosing one type of technology over another for completing a specific task.  |   |     | X   | Classroom Teacher  |
|   |   |   |     |     |  |
| <b>6. Technology problem-solving and decision-making tools</b><br>a. Students use technology resources for solving problems and making informed decisions       | 1. Students discuss how to use technology resources (e.g., dictionaries, encyclopedias, search engines, websites) to solve age-appropriate problems.  |   |     | X   | Classroom Teacher<br><br>Media Specialist                    |
| b. Students employ technology in the development of strategies for solving problems in the real world.  | 1. Students identify ways that technology has been used to address real-world problems (personal or community).   |   |     | X   | Classroom Teacher  |

| Standards   | By the end of<br>Grade 4  | 3rd | 4th | Responsibility                                       |
|---|---|-----|-----|--|
| <b>1.Basic Operations and concepts</b><br>a. Students demonstrate a sound understanding of the nature and operation of technology standards | 1. Students discuss ways technology has changed life at school and at home.   | X   | X   | Classroom Teacher                                    |
|   | 2. Students discuss ways technology has changed business and government over the years.   | X   | X   | Classroom Teacher                                    |
|   | 3. Students recognize and discuss the need for security applications (e.g., virus detection, spam defense, popup blockers, firewalls) to help protect information and to keep the system function properly.                           | X   | X   | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
| b. Students are proficient in the use of technology.  | 1. Students know how to use basic input/output devices and other peripherals (e.g., scanners, digital cameras, video projectors).   | X   | X   | Classroom Teacher<br><br>Media Specialist<br>w/3rd   |
|   | 2. Students know proper keyboarding positions and touch-typing techniques.  | X   | X   | Classroom Teacher<br>Lab Teacher                     |
|   | 3. Students manage and maintain files on a hard drive or the network  | X   | X   | Classroom Teacher<br>Media Specialist<br>w/3rd       |
|   | 4. Students demonstrate proper care in the use of hardware, software, peripherals, and storage media.   | X   | X   | Classroom Teacher<br>Media specialist<br>Lab Teacher |
|   | 5. Students know how to exchange files with other students using technology (e.g., email attachments, network file sharing, diskettes, flash drives).   | X   | X   | Classroom Teacher                                    |
|   | 6. Students identify search strategies for locating needed information on the internet.   | X   | X   | Classroom Teacher                                    |
|   | 7. Students identify which types of software can be used most effectively for the types of data, for different information needs, or for conveying results to different audiences.  | X   | X   | Classroom Teacher<br>Media Specialist                |
|   | 8. Students proofread and edit writing using appropriate resources (e.g., dictionary, spell check, grammar check, grammar references, and writing references) and grade level appropriate checklists both individually and in groups. | X   | X   | Classroom Teacher<br>Media Specialist<br>w/3rd       |

| <b>Standards</b>  | <b>By the end of<br/>Grade 4</b>   | <b>3rd</b> | <b>4th</b> | <b>Responsibility</b>                                |
|---|--|------------|------------|--|
| <b>2. Social, ethical, and human issues.</b><br>a. Students understand the ethical, cultural, and societal issues related to technology.              | 1. Students identify cultural and societal issues relating to technology.  |            | X          | Classroom Teacher                                    |
|   | 2. Students discuss how information and communication technology supports collaboration, productivity, and lifelong learning.  |            | X          | Classroom Teacher                                    |
|   | 3. Students discuss how various assistive technologies can benefit individuals with disabilities.  |            | X          | Classroom Teacher                                    |
|   | 4. Students discuss the accuracy, relevance, appropriateness, and bias of electronic information sources.  |            | X          | Classroom Teacher                                    |
| b. Student practice responsible use of technology systems, information, and software.   | 1. Students discuss scenarios describing acceptable and unacceptable uses of technology (e.g., computers, digital camera, cell-phones, PDA's, wireless connectivity) and describe consequences of inappropriate use. | X          | X          | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
|   | 2. Students discuss basic issues regarding appropriate and inappropriate uses of technology (e.g., copyright, privacy, file sharing, spam, viruses, and plagiarism) and related laws.                                | X          | X          | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
|   | 3. Students use age-appropriate citing of sources for electronic reports.  | X          | X          | Classroom Teacher                                    |
|   | 4. Students identify appropriate kinds of information that should be shared in public chat rooms.  |            | X          | Classroom Teacher                                    |
|   | 5. Students identify safety precautions that should be taken while on-line.  |            | X          | Classroom Teacher<br>Media Specialist                |
| c. Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits and productivity.      | 1. Students explore various technology resources that could assist them in pursuing personal goals.  | X          | X          | Classroom Teacher                                    |
|   | 2. Students identify technology resources and describe how those resources improve the ability to communicate, increase productivity, or help them achieve personal goals.   |            | X          | Classroom Teacher                                    |
|   |  |            |            |  |
| <b>3. Technology productivity tools.</b><br>a. Students use technology tools to enhance learning, increase productivity, and promote creativity.      | 1. Students know how to use menu options in applications to print, format, add multimedia features; open, save, manage files; and use various grammar tools (e.g. dictionary, thesaurus, spell-checker).             | X          | X          | Classroom Teacher<br>Media Specialist<br>Lab Teacher |
|   | 2. Students know how to insert various objects (e.g. photos, graphics, sound, video) into word processing XX documents, presentations, or web documents.   | X          | X          | Classroom Teacher<br>Media Specialist<br>w/3rd       |
|   | 3. Students use a variety of technology tools and applications to promote (their) creativity.  | X          | X          | Classroom Teacher<br>Media Specialist<br>w/3rd       |
|   | 4. Students understand that existing (and future) technologies are the result of human creativity.   | X          | X          | Classroom Teacher                                    |
| b. Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works. | 1. Students collaborate with classmates using a variety of technology tools to plan, organize, and create a group project.   |            | X          | Classroom Teacher                                    |

| <b>Standards</b>  | <b>By the end of<br/>Grade 4</b>   | <b>3rd</b> | <b>4th</b> | <b>Responsibility</b>                          |
|---|--|------------|------------|--|
| <b>4. Technology communications tools</b><br>a. Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences. | 1. Students use basic telecommunication tools (e.g., email, Web Quests, IM blogs, chat rooms, web conferencing) for collaborative projects with other students.  |            | X          | Classroom Teacher                              |
| b. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.  | 1. Students use a variety of media and formats to create and edit products (e.g., presentations, newsletters, brochures, web pages) to communicate information and ideas to various audiences.   |            | X          | Classroom Teacher                              |
|   | 2. Students identify how different forms of media and formats may be used to share similar information, depending on the intended audience (e.g., presentations for classmates, newsletters for parents.)  |            | X          | Classroom Teacher<br>Media Specialist<br>w/3rd |
| <b>5. Technology research tools</b><br>a. Students use technology to locate, evaluate, and collect information from a variety of sources.                       | 1. Students use Web search engines and built-in search functions of other various resources to locate information.   | X          | X          | Classroom Teacher                              |
|   | 2. Students describe basic guidelines for determining the validity of information accessed from various sources (e.g., web site, dictionary, on-line newspaper, CD-ROM).   |            | X          | Classroom Teacher<br>Media Specialist          |
| b. Students use technology tools to process data and report results.  | 1. Students know how to independently use existing databases (e.g., library catalogs, electronic dictionaries, encyclopedias) to locate, sort and interpret information on an assigned topic.  | X          | X          | Classroom Teacher<br>Media Specialist          |
|   | 2. Students perform simple queries on existing databases and report results on an assigned topic.  | X          | X          | Classroom Teacher                              |
| c. Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks.                         | 1. Students identify appropriate technology tools and resources by evaluating the accuracy, appropriateness, and bias of the resource.   |            | X          | Classroom Teacher<br>Media Specialist          |
|   | 2. Students compare and contrast the functions and capabilities of the word processor, database, and spreadsheet for gathering data, processing data, performing calculations, and reporting results.  |            | X          | Classroom Teacher<br>Lab Teacher               |
| <b>6. Technology problem-solving and decision-making tools</b><br>a. Students use technology resources for solving problems and making informed decisions.      | 1. Students use technology resources to access information that can assist (them) in making informed decisions about everyday matters (e.g., which movie to see, which product to purchase).   | X          | X          | Classroom Teacher                              |
| b. Students employ technology in the development of strategies for solving problems in the real world.  | 1. Students use information and communication technology tools (e.g., calculators, probes, videos, DVDs, educational software) to collect, organize, and evaluate information to assist with solving real-life problems (personal or community). | X          | X          | Classroom Teacher                              |

# Appendix II

## 5<sup>th</sup> - 8<sup>th</sup> Grade Michigan Technology Benchmarks & Grade Level Responsibility

Each initial represents a teacher

| Standards  | By the end of<br>Grade 5  | Tech Class      |                 |                 |                 | English | Math  | Science | Social<br>Studies |
|--|---|-----------------|-----------------|-----------------|-----------------|---------|-------|---------|-------------------|
|  |   | 5 <sup>th</sup> | 6 <sup>th</sup> | 7 <sup>th</sup> | 8 <sup>th</sup> |         |       |         |                   |
| <b>1. Basic Operations and concepts</b><br>a. Students demonstrate a sound understanding of the nature and operation of technology standards | 1. Students discuss ways technology has changed life at school and at home.   | X               |                 |                 |                 |         | B,G,P | M       | B,G,P             |
|  | 2. Students discuss ways technology has changed business and government over the years.   | X               |                 |                 |                 |         | M     | B,G,P,M | B,G,P,M           |
|  | 3. Students recognize and discuss the need for security applications (e.g., virus detection, spam defense, popup blockers, firewalls) to help protect information and to keep the system function properly.                           | X               |                 |                 |                 |         |       |         |                   |
| b. Students are proficient in the use of technology.   | 1. Students know how to use basic input/output devices and other peripherals (e.g., scanners, digital cameras, video projectors).   |                 |                 |                 |                 | B,G,P   |       | B,G,P   | B,G,P             |
|  | 2. Students know proper keyboarding positions and touch-typing techniques.  | X               |                 |                 |                 |         |       |         |                   |
|  | 3. Students manage and maintain files on a hard drive or the network  | X               |                 |                 |                 | B,G,P,K |       | M       | MK                |
|  | 4. Students demonstrate proper care in the use of hardware, software, peripherals, and storage media.   | X               |                 |                 |                 | B,G,P,K |       | M       | M                 |
|  | 5. Students know how to exchange files with other students using technology (e.g., email attachments, network file sharing, diskettes, flash drives).   | X               |                 |                 |                 | B,G,P,K |       | B,G,P   | B,G,P,K           |
|  | 6. Students identify search strategies for locating needed information on the internet.   | X               |                 |                 |                 | B,G,P,K |       | B,G,P   | B,G,P,K           |
|  | 7. Students identify search strategies for locating needed information on the internet.   | X               |                 |                 |                 |         |       |         |                   |
|  | 8. Students proofread and edit writing using appropriate resources (e.g., dictionary, spell check, grammar check, grammar references, and writing references) and grade level appropriate checklists both individually and in groups. | X               |                 |                 |                 | B,G,P   |       | B,G,P   | B,G,P,M           |

| Standards  | By the end of<br>Grade 5   | Tech Class      |                 |                 |                 | English | Math    | Science | Social<br>Studies |
|--|--|-----------------|-----------------|-----------------|-----------------|---------|---------|---------|-------------------|
|  |  | 5 <sup>th</sup> | 6 <sup>th</sup> | 7 <sup>th</sup> | 8 <sup>th</sup> |         |         |         |                   |
| <b>2. Social, ethical, and human issues.</b><br>a. Students understand the ethical, cultural, and societal issues related to technology.         | 1. Students identify cultural and societal issues relating to technology.  | X               |                 |                 |                 |         |         |         | M                 |
|  | 2. Students discuss how information and communication technology supports collaboration, productivity, and lifelong learning.  | X               |                 |                 |                 |         |         | M       | M                 |
|  | 3. Students discuss how various assistive technologies can benefit individuals with disabilities.  |                 |                 |                 |                 |         |         |         |                   |
|  | 4. Students discuss the accuracy, relevance, appropriateness, and bias of electronic information sources.  |                 |                 |                 |                 | B,G,P,K |         |         | B,G,P,<br>M,K     |
| b. Student practice responsible use of technology systems, information, and software.  | 1. Students discuss scenarios describing acceptable and unacceptable uses of technology (e.g., computers, digital camera, cell-phones, PDA's, wireless connectivity) and describe consequences of inappropriate use. | X               |                 |                 |                 | B,G,P,K | B,G,P,K | B,G,P,K | B,G,P,K           |
|  | 2. Students discuss basic issues regarding appropriate and inappropriate uses of technology (e.g., copyright, privacy, file sharing, spam, viruses, and plagiarism) and related laws.                                | X               |                 |                 |                 | B,G,P,K | M       | B,G,P,M | M,K               |
|  | 3. Students use age-appropriate citing of sources for electronic reports.  | X               |                 |                 |                 | B,G,P,K |         | B,G,P,M | M,K               |
|  | 4. Students identify appropriate kinds of information that should be shared in public chat rooms.  |                 |                 |                 |                 |         |         |         |                   |
|  | 5. Students identify safety precautions that should be taken while on-line.  | X               |                 |                 |                 |         |         |         |                   |
| c. Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits and productivity. | 1. Students explore various technology resources that could assist them in pursuing personal goals.  | X               |                 |                 |                 |         |         | M       | M                 |
|  | 2. Students identify technology resources and describe how those resources improve the ability to communicate, increase productivity, or help them achieve personal goals.   | X               |                 |                 |                 |         |         | M       | M                 |

| Standards   | By the end of<br>Grade 5   | Tech Class  |                 |                 |                 | English | Math  | Science       | Social<br>Studies |         |
|---|--|---|-----------------|-----------------|-----------------|---------|-------|---------------|-------------------|---------|
|   |  | 5 <sup>th</sup>   | 6 <sup>th</sup> | 7 <sup>th</sup> | 8 <sup>th</sup> |         |       |               |                   |         |
| <b>3. Technology productivity tools</b><br>a. Students use technology tools to enhance learning, increase productivity, and promote creativity                  | 1. Students know how to use menu options in applications to print, format, add multimedia features; open, save, manage files; and use various grammar tools (e.g. dictionary, thesaurus, spell-checker). | X   |                 |                 |                 | B,G,P,K |       | B,G,P,<br>K,M | B,G,P,<br>K,M     |         |
|   | 2. Students know how to insert various objects (e.g. photos, graphics, sound, video) into word processing XX documents, presentations, or web documents.   | X   |                 |                 |                 | B,G,P   |       | B,G,P         | B,G,P             |         |
|   | 3. Students use a variety of technology tools and applications to promote (their) creativity.  | X   |                 |                 |                 | B,G,P   |       | B,G,P,M       | M                 |         |
|   | 4. Students understand that existing (and future) technologies are the result of human creativity.   | X   |                 |                 |                 |         |       | M             | M                 |         |
| b. Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.           | 1. Students collaborate with classmates using a variety of technology tools to plan, organize, and create a group project.   |   |                 |                 |                 |         |       | M             | M                 |         |
|   |  |   |                 |                 |                 |         |       |               |                   |         |
| <b>4. Technology communications tools</b><br>a. Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences. | 1. Students use basic telecommunication tools (e.g., email, Web Quests, IM blogs, chat rooms, web conferencing) for collaborative projects with other students.  |   |                 |                 |                 |         |       |               |                   |         |
|   | b. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.   | 1. Students use a variety of media and formats to create and edit products (e.g., presentations, newsletters, brochures, web pages) to communicate information and ideas to various audiences.            | X               |                 |                 |         | B,G,P |               | B,G,P,M           | B,G,P,M |
|   |  | 2. Students identify how different forms of media and formats may be used to share similar information, depending on the intended audience (e.g., presentations for classmates, newsletters for parents.) | X               |                 |                 |         |       |               | M                 | M       |

| Standards  | By the end of<br>Grade 5   | Tech Class      |                 |                 |                 | English | Math          | Science       | Social<br>Studies |
|--|--|-----------------|-----------------|-----------------|-----------------|---------|---------------|---------------|-------------------|
|  |  | 5 <sup>th</sup> | 6 <sup>th</sup> | 7 <sup>th</sup> | 8 <sup>th</sup> |         |               |               |                   |
| <b>5. Technology research tools</b><br>a. Students use technology to locate, evaluate, and collect information from a variety of sources.                  | 1. Students use Web search engines and built-in search functions of other various resources to locate information.   | X               |                 |                 |                 | B,G,P,K |               | B,G,P,K       | K,M               |
|  | 2. Students describe basic guidelines for determining the validity of information accessed from various sources (e.g., web site, dictionary, on-line newspaper, CD-ROM).   | X               |                 |                 |                 | B,G,P   | M             | B,G,P,M       | M                 |
| b. Students use technology tools to process data and report results.   | 1. Students know how to independently use existing databases (e.g., library catalogs, electronic dictionaries, encyclopedias) to locate, sort and interpret information on an assigned topic.  | X               |                 |                 |                 | B,G,P,K |               |               | B,G,P,K           |
|  | 2. Students perform simple queries on existing databases and report results on an assigned topic.  |                 |                 |                 |                 |         |               | M             | M                 |
| c. Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks.                    | 1. Students identify appropriate technology tools and resources by evaluating the accuracy, appropriateness, and bias of the resource.   |                 |                 |                 |                 |         |               | M             | M                 |
|  | 2. Students compare and contrast the functions and capabilities of the word processor, database, and spreadsheet for gathering data, processing data, performing calculations, and reporting results.  | X               |                 |                 |                 |         |               | M             | M                 |
|  |  |                 |                 |                 |                 |         |               |               |                   |
| <b>6. Technology problem-solving and decision-making tools</b><br>a. Students use technology resources for solving problems and making informed decisions. | 1. Students use technology resources to access information that can assist (them) in making informed decisions about everyday matters (e.g., which movie to see, which product to purchase).   | X               |                 |                 |                 |         |               |               |                   |
| b. Students employ technology in the development of strategies for solving problems in the real world.   | 1. Students use information and communication technology tools (e.g., calculators, probes, videos, DVDs, educational software) to collect, organize, and evaluate information to assist with solving real-life problems (personal or community). |                 |                 |                 |                 |         | B,G,<br>P,K,M | B,G,<br>P,K,M | B,G,<br>P,K,M     |

| Standards  | By the end of<br>Grade 8  | Tech Class      |                 |                 |                 | English | Math  | Science | Social<br>Studies |
|--|---|-----------------|-----------------|-----------------|-----------------|---------|-------|---------|-------------------|
|  |   | 5 <sup>th</sup> | 6 <sup>th</sup> | 7 <sup>th</sup> | 8 <sup>th</sup> |         |       |         |                   |
| <b>1. Basic Operations and concepts</b><br>a. Students demonstrate a sound understanding of the nature and operation of technology standards | 1. Students understand that new technology tools can be developed to do what could not be done without the use of technology.   |                 | X               | X               | X               | 6,7,8   | 6,7,8 | 6,7,8   | 6,7               |
|  | 2. Students describe strategies for identifying, and preventing routine hardware and software problems that may occur during everyday technology use.   |                 | X               | X               | X               | 7       |       |         | 7                 |
|  | 3. Students identify changes in hardware and software systems over time and discuss how these changes affected various groups (e.g., individual users, education, government and business).   |                 | X               | X               | X               |         | 7     | 8       |                   |
|  | 4. Students discuss common hardware and software difficulties and identify strategies for trouble-shooting and problem solving.   |                 | X               | X               | X               | 7       |       | 8       | 7                 |
| b. Students are proficient in the use of technology.   | 5. Students identify characteristics that suggest that the computer system hardware or software might need to be upgraded   |                 | X               | X               | X               | 7       |       |         | 7                 |
|  | 1. Students use proper keyboarding posture, finger positions, and touch-typing techniques to improve accuracy, speed, and general efficiency in operating a computer  |                 | X               | X               | X               | 6,7     | 6     | 6       | 6,7               |
|  | 2. Students use accurate technology terminology   |                 | X               | X               | X               | 6,7     | 6,7   | 6,7     | 6,7               |
|  | 3. Students use a variety of technology tools (e.g., dictionary, thesaurus, grammar-checker, calculator) to maximize the accuracy of technology-produced products.  |                 | X               | X               | X               | 6,7     | 6,7,8 | 6,7,8   | 6,7               |
|  | 4. Students identify a variety of information storage devices (e.g., floppies, CDs, DVDs, flash drives, tapes) and provide a rationale for using a certain device for a specific purpose.   |                 | X               | X               | X               | 6,7,8   | 6     | 6,7     | 6,7               |
|  | 5. Students identify technology resources that assist with various consumer related activities (e.g., budgets, purchases, banking transactions, product descriptions).  |                 | X               | X               | X               |         | 7,8   | 8       |                   |
|  | 6. Students can identify appropriated file formats for a variety of applications.   |                 |                 | X               | X               | 7       | 8     | 8       | 7                 |
|  | 7. Students can use basic utility programs or built-in application functions to convert file formats.   |                 |                 | X               | X               | 7       |       |         | 7                 |
|  | 8. Students proofread and edit writing using appropriate resources (e.g., dictionary, spell check, grammar check, grammar references, and writing references) and grade level appropriate checklists both individually and in groups. |                 | X               | X               | X               | 6,7,8   |       | 6       | 6,7,8             |

| Standards  | By the end of<br>Grade 8   | Tech Class      |                 |                 |                 | English | Math | Science | Social<br>Studies |
|--|--|-----------------|-----------------|-----------------|-----------------|---------|------|---------|-------------------|
|  |  | 5 <sup>th</sup> | 6 <sup>th</sup> | 7 <sup>th</sup> | 8 <sup>th</sup> |         |      |         |                   |
| <b>2. Social, ethical, and human issues.</b><br>a. Students understand the ethical, cultural, and societal issues related to technology.             | 1. Students understand the potential risks and dangers associated with on-line communications.   |                 | X               | X               | X               | 6,7     |      | 6,7     | 6,7,8             |
|  | 2. Students identify security issues related to e-commerce.  |                 |                 | X               | X               |         | 8    |         |                   |
|  | 3. Students describe possible consequences and costs related to unethical use of information and communication technologies.   |                 |                 | X               | X               | 6       |      | 6       | 6                 |
|  | 4. Students discuss the societal impact of technology in the future.   |                 | X               | X               | X               | 6,7     |      | 6,7     | 6,7               |
| b. Students practice responsible use of technology systems, information, and software.   | 1. Students provide accurate citations when referencing information from outside sources in electronic reports.  |                 | X               | X               | X               | 6,7     |      | 7       | 6,7               |
|  | 2. Students discuss issues related to acceptable and responsible use of technology (e.g. privacy. Security, copyright, plagiarism, spam, and viruses, file-sharing)... |                 | X               | X               | X               | 6,7,8   | 6,7  | 6,7     | 6,7,8             |
|  | 1. Students use technology to identify and explore various occupations or careers.   |                 |                 | X               | X               | 8       | 7    | 6,7,8   |                   |
| c. Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.    | 2. Students discuss uses of technology (present and future) to support personal pursuits and lifelong learning.  |                 | X               | X               | X               | 7,8     |      |         | 7                 |
|  | 3. Students identify uses of technology to support communication with peers, family, or school personnel.  |                 | X               | X               | X               | 7,8     | 7    | 6,7     | 7,Band            |
|  |  |                 |                 |                 |                 |         |      |         |                   |
| <b>3. Technology productivity tools</b><br>a. Students use technology tools to enhance learning, increase productivity, and promote creativity       | 1. Students apply common software features (e.g., thesaurus, formulas, charts, graphics, sounds) to enhance communication and to support creativity.                   |                 | X               | X               | X               | 7       |      | 6,7     | 7                 |
|  | 2. Students use a variety of resources, including the internet, to increase learning and productivity.   |                 | X               | X               | X               | 6,7,8   | 6    | 6,7     | 6,7               |
|  | 3. Students explore basic applications that promote creativity (e.g., graphics, presentation, photo-editing, programming, video-editing).                              |                 | X               | X               | X               | 6,7,8   |      | 6,7     | 6,7               |
|  | 4. Students use available utilities for editing pictures, images or charts.  |                 | X               | X               | X               | 7       | 7    | 7       | 7                 |
|  | 1. Students use collaborative tools to design, develop, and enhance materials, publications, or presentations.   |                 |                 |                 |                 | 7,8     |      | 6,7     | 6,7               |
| b. Student use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works. |  |                 |                 |                 |                 |         |      |         |                   |

| Standards   | By the end of<br>Grade 8  | Tech Class   |                 |                 |                 | English | Math  | Science | Social<br>Studies                     |
|---|---|--|-----------------|-----------------|-----------------|---------|-------|---------|---------------------------------------|
|   |   | 5 <sup>th</sup>  | 6 <sup>th</sup> | 7 <sup>th</sup> | 8 <sup>th</sup> |         |       |         |                                       |
| <b>4. Technology communications tools</b><br>a. Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences. | 1. Students use a variety of telecommunication tools (e.g., email, discussion groups, IM chat rooms, blogs, video-conferences, we conferences) or other online resources to collaborate interactively with peers, experts, and other audiences. |  |                 |                 | X               | 8       |       |         | E-mail<br>peace<br>corps<br>volunteer |
|   | b. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.  | 1. Students create a project (e.g., presentation, web page, newsletter, information brochure) using a variety of media and formats (e.g., graphs, charts, audio, graphics, video) to present content information to an audience. |                 | X               | X               | X       | 6,7,8 |         | 6,7                                   |
|   |   |  |                 |                 |                 |         |       |         |                                       |
| <b>5. Teacher research tools</b><br>a. Students use technology to locate, evaluate, and collect information from a variety of sources.                          | 1. Students use a variety of Web search engines to locate information.  |  | X               | X               | X               | 7,8     |       | 6,7     | 7,8                                   |
|   |   | 2. Students evaluate information from various online resources for accuracy, bias, appropriateness, and comprehensiveness.   |                 |                 | X               | X       | 6,7   |         | 6,7                                   |
|   |   |  |                 | X               | X               | 6,7,8   |       | 7       | 7                                     |
| b. Students use technology tools to process data and report results.  | 1. Students know how to create and populate a database.   |  |                 | X               |                 |         | 8     |         |                                       |
|   | 2. Students can perform queries on existing databases.  |  |                 | X               |                 | 7       | 8     |         |                                       |
|   | 3. Students know how to create and modify a simple database report.   |  |                 | X               |                 | 7       |       |         |                                       |
| c. Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks.                         | 1. Students evaluate new technology tools and resources and determine the most appropriate tool to use for accomplishing a specific task.   |  |                 | X               | X               | 7,8     | 7     | 7       | 7                                     |
|   |   |  |                 |                 |                 |         |       |         |                                       |
| <b>6. technology problem-solving and decision-making tools</b><br>a. Students use technology resources for solving [problems and making informed decisions.     | 1. Students use database or spreadsheet information to make predictions, develop strategies, and evaluate decisions to assist them with solving a basic problem.  |  |                 |                 | X               | 8       |       | 7       |                                       |
|   | b. Students employ technology in the development of strategies for solving problems in the real world.  | 1. Students describe the information and communication technology tools to use for collecting information from different sources, analyze their findings, and draw conclusions for addressing real-world problems.               |                 |                 |                 |         | 8     |         |                                       |

# Appendix III

## 9<sup>th</sup> – 12<sup>th</sup> Grade Michigan Technology Benchmarks & Grade Level Responsibility

| Standards   | By the time of graduation  | Tech Class | Core Classes |   |   |    |
|---|--|------------|--------------|---|---|----|
|   |  |            | E            | M | S | SS |
| <b>1. Students will be proficient using basic operations and concepts of technology.</b>                                  | 1.1 New technology and emerging technologies will be discussed and its capabilities and limitations identified.  | X          |              |   | X | X  |
|   | 1.2 How changes in technology including hardware and software affects the student as a life-long learner in the 21st Century                             | X          |              |   |   | X  |
|   | 1.3 Understand the use of electronic resources, infrastructure, connectivity, and assistive technology   | X          |              |   |   |    |
|   | 1.4 Understand the advantages of on-line learning  | X          | X            | X | X | X  |
|   | 1.5 Keyboarding, proofreading, and editing skills will be continually reinforced   | X          | X            |   |   | X  |
|   | 1.6 Identify different file formats and demonstrate the ability to integrate these formats into a final project  | X          | X            | X |   |    |
|   | 1.7 Use on-line help and other support to assist and solve hardware and software problems  | X          | X            | X | X | X  |
|   |  |            |              |   |   |    |
| <b>2. Students will demonstrate the appropriate use of technology and its impact on ethical, social, and human issues</b> | 2.1 Identify, analyze, and discuss ethical and unethical uses of technology to inform and communicate  | X          | X            |   |   | X  |
|   | 2.2 Discuss possible long range aspects and consequences of unethical uses of information and technology   | X          |              |   |   | X  |
|   | 2.3 Identify ways to protect technological systems from unethical or malicious uses  | X          | X            | X | X | X  |
|   | 2.4 Understand the fair use and copyright guidelines and the differences between freeware, shareware, and commercial software                            | X          |              |   |   |    |
|   | 2.5 Use appropriate citations for resources when presenting research data  | X          | X            |   | X | X  |
|   | 2.6 Adhere to the district acceptable use policy   | X          | X            | X | X | X  |
|   | 2.7 Explore career opportunities and design and implement an educational development plan that includes technology to support life-long learning courses | X          |              |   |   |    |

| Standards  | By the time of graduation   | Tech Class | Core Classes |   |   |    |
|--|---|------------|--------------|---|---|----|
|  |   |            | E            | M | S | SS |
| <b>3. Students will demonstrate proficiency in the use of technological tools in the areas of productivity, communication, research, problem-solving and decision-making</b> | 3.1 Have the opportunity to participate in an on-line learning experience in order to discuss the advantages and disadvantages of this learning method  | X          |              |   |   |    |
|  | 3.2 Identify and use technology tools to communicate personal information and create group projects   | X          | X            |   | X | X  |
|  | 3.3 Access and use assistive technology tools built into software   | X          | X            | X | X | X  |
|  | 3.4 Plan, create, and edit content appropriate documents  | X          | X            | X | X | X  |
|  | 3.5 Demonstrate exporting of documents for use in a web page  | X          |              |   |   |    |
|  | 3.6 Participate in technology-related, real-life experiences related to a career  | X          |              | X | X |    |
|  | 3.7 Identify, discuss, and use various tele-communication tools and on-line technologies to plan and implement a collaborative, content-related project | X          |              |   |   |    |
|  | 3.8 Use a variety of media and formats to design, develop, publish, and present products to communicate original ideas to multiple audiences            | X          | X            |   | X | X  |
|  | 3.9 Gather and evaluate information from internet search engines  | X          | X            | X | X | X  |
|  | 3.10 Evaluate on-line sources of information for fact or personal opinions  | X          | X            |   | X | X  |
|  | 3.11 Use technology to problem solve and communicate the information to others to support a hypothesis  | X          |              |   | X |    |

# Appendix IV

## Technology and the Curriculum Goals

### Student Technology Benchmarks Cass City Public Schools

#### Kindergarten

1. Identify Parts and Hardware.
2. Identify how to turn the computer on and off.
3. Identify and use the keyboard functions, including enter and spacebar.
4. Use icons to open a software program.
5. Use the mouse to point, click, and close programs.
6. Describe technology used in daily life and places where it is used
7. Learn basic computer care.
8. Know technology is a tool for a variety of tasks
9. Know that irresponsible use of technology has consequences.
10. Use technology when possible in curricular areas.

#### First Grade

1. Review and apply Kindergarten Benchmarks and use technology when possible in curricular areas.
2. Identify home row.
3. Use age-appropriate technologies to gather information.
4. Use a variety of software to convey ideas and concepts, and share them with others.
5. Use passwords and recognize purpose.
6. Are aware of how to work with other when using technology tools.
7. Can use web browser.

#### Second Grade

1. Review and apply K-1 Benchmarks and use technology when possible in curricular areas.
2. Discuss advantages and disadvantages of technology.
3. Demonstrate word processing skills by creating a product. (font selection, graphics), proof-reading and editing.
4. Use a variety of technology resources to gather and interpret information; provide a rationale for their choices
5. Discuss ways technology can be used to solve age-appropriate and real world problems.

#### Third Grade

1. Review and apply K-2 Benchmarks and use technology when possible in curricular areas.
2. Demonstrate use of keyboard with correct fingering for letter, shift, punctuation keys and spacebar (goal 5 – 10 wpm)
3. Discuss ways technology has changed our lives (home, school, business, government).
4. Recognize need for security.
5. Use applications and care for digital cameras, scanners and other peripheral devices.
6. Students know how to manage, maintain and exchange files.
7. Know internet search strategies.
8. Are familiar with copyright laws and licensing.
9. Know appropriate use of internet, safety rules, privacy and district acceptable use policy.
10. Know age-appropriate citing of sources for electronic reports
11. Develop a multi-media presentation
12. Know how to independently use existing data basis and report results.

## **Fourth Grade**

1. Review and apply K-3 Benchmarks and use technology when possible in curricular areas.
2. Identify the impact of technology on people's lives.
3. Identify safety procedures for on-line activities.
4. Identify and explore technology resources that could improve ability to communicate, increase productivity or help them achieve personal goals.
5. Collaborate on a group project using technology.
6. Create brochures, newsletters, or other media to communicate a variety of information to others.
7. Know basic guidelines for determining validity of various sources of information.
8. Compare and contrast functions and capabilities of word processor, database and spread sheet.
9. Master home row hand position, typing 10 to 15 wpm.

## **Fifth Grade**

1. Review and apply K-4 Benchmarks.
2. Students will use proper keyboarding positions (15-20 wpm)
3. Demonstrate knowledge of and comply with Cass City Public Schools Acceptable Use Policy.
4. Understand the potential risks and dangers associate with online communications.
5. Develop a report using word processing.
6. Complete a Webquest project.
7. Set margins and change page orientation.
8. Create and name folders.
9. Include the use of the Paint feature.
10. Create a multimedia project using the skills mastered in previous grades (Power Point).
11. Use desktop publishing software to create a student project.
12. Use the most appropriate software to effectively process different types of data and convey results.
13. Utilize online sources (encyclopedia, search engines).
14. Use relevance and accuracy in online research.
15. Use Internet information to produce a product (report, etc).

## **Sixth Grade**

1. Review K-5 Benchmarks for mastery.
2. Students will use keyboarding positions. (20-25 wpm)
3. Discuss advancements and terminology in technology and the impact they have had on society.
4. Demonstrate knowledge of and comply with the Cass City Public Schools Acceptable Use Policy. (Discuss issues of privacy, security, copyright, plagiarism, etc.)
5. Discuss strategies for solving common software and hardware problems.
6. Produce a document that utilizes a variety to technology tools (e.g. dictionary, thesaurus, and grammar checker)
7. Learn how to exchange files with other students (e.g. e-mail attachments, flash drives, diskettes).
8. Develop and present a multimedia presentation using scanner, digital camera, or video projector.
9. Use the Internet and other online resources for research and communication to demonstrate basic Internet search skills and discuss the bias of this information. (Use a variety of search engines.)
10. Use age-appropriate citing of sources for electronic reports.
11. Create a project using a variety of file formats and/or templates. (e.g. graphs, charts, and/or graphics)
12. Create a project that processes data (databases, budgets, banking product descriptions).
13. Solve a problem in the real world by using a spreadsheet template to make predictions, develop strategies, and evaluate the decision reached.

## **Seventh Grade**

1. Demonstrate mastery of all K-6 Benchmarks.
2. Students will use proper keyboarding positions. (25-30 wpm)
3. Demonstrate the appropriate use of the Internet and resources for accuracy, bias, appropriateness and comprehensiveness.
4. Demonstrate knowledge of and comply with Cass City Public Schools Acceptable Use Policy and Copyright and Licensing Laws; follow Internet etiquette.
5. Students identify security issues related to ecommerce
6. Model ethical, legal, safe and responsible behavior when using technology.
7. Use word processing features to import pictures and develop documents, reports, and letters using basic utility programs or built in application functions to convert file formats.
8. Develop spreadsheets using: Cells, Rows, Cell formats, Row formats, Column formats, Number formats, Alignments, Formulas, Graphs, and Charts.
9. Format a disk, saving files to folders, CD's, flash drives, etc
10. Demonstrate e-mail etiquette.
11. Use basic applications that promote creativity. (editing, inserting, formatting images, sound, charts, etc)
12. Use collaborative tools to design, develop, and enhance a pamphlet or publication.

## **Eighth Grade**

1. Demonstrate mastery of all K-7 Benchmarks.
2. Students will use proper keyboarding positions. (30-35 wpm)
3. Demonstrate more advanced features of word processing, spreadsheets and database computer applications to produce an integrated product.
4. Continually model ethical, legal, safe, and responsible behavior in using technology.
5. Continually follow Internet etiquette.
6. Demonstrate basic file management.
7. Use content specific technologies.
8. Merge digital imaging in a product or multimedia presentation.
9. Practice e-mail skills, discussion groups, chat rooms, blogs, video conferences to interact with peers, experts, and other audiences.
10. Use the Internet for research to produce a product: Develop a search strategy using keywords, demonstrate the use of strategies for online searching to aid in the management and movement of data, use online resources (topic appropriate), evaluate information obtained from web sites, and organize and analyze information in order to draw conclusions and implications.
11. Create a portfolio using a web designing program using a variety of media and formats.
12. Students evaluate new technology tools and resources to determine the most appropriate tool for accomplishing a specific task or for addressing real world problems.
13. Explore various careers and discuss the concept of lifelong learning.

## High School

1. Demonstrate mastery of all K-8 Benchmarks by applying mastered skills across the curriculum.
2. Produce word-processed documents as dictated by current industry trends (in all subject areas)
3. Manipulate databases by gathering data and reporting, interpreting and communicating results (in all subject areas)
4. Process numeric information using a spreadsheet (math, science, computer lit.)
5. Use content-specific software and technology; Macromedia, Microsoft Office XP professional, Microsoft Office Publisher, TI Graphing calculators, Assistive Technology, careercruising.com, United Streaming, Adobe Photoshop, Elitevision, Etc. (in all subject areas)
6. Investigate careers that use various technologies (in all subject areas)
7. Understand and use online resources (in all subject areas)
8. Utilize virtual and simulated learning opportunities in Michigan Virtual High School (in all subject areas)
9. Create document using desktop publishing software applications (in all subject areas and in publishing class)
10. Discuss and model ethical, legal, safe and responsible use of technology (in student & teacher handbooks, discussed in the classroom)
11. Update resume for EDP (Educational Development Plan)
12. Use careercruising.com for career exploration
13. Develop basic understanding of network and what it does
14. Be aware of programming languages and what they do
15. Produce advanced multimedia presentation
16. Use advanced internet tools
17. Create a web page

# Appendix V

## Technology Integration into All Content Areas -Activities and Resources-

### Kindergarten – 4<sup>th</sup> Grade

#### Language Arts and Social Studies

- Word processing, spell check, thesaurus and grammar checking software used in writing process.
- Database for research.
- Organize, track, and investigate and communicate progress in reading with databases and spreadsheets.
- Intervention, remediation, and reinforcement of language arts skills.
- Multimedia reports and productions with graphics, text, and sound.
- Creation of timelines of events.
- Desktop publishing of documents, reports, and other published materials.
- Software and online resources for map skills.
- CD-ROM and online resources for research.
- Instructional resources on videotape, videodisc, and instructional television.
- Digitizing peripherals used in student projects.
- Simulation software used in problem solving.
- Individual and cooperative learning involving computer-based resources.
- Vocabulary review via computer.
- Digitized audio for language development.

#### Math and Science

- Database and spreadsheet software.
- Intervention, remediation, and reinforcement of software for skill development.
- Simulation software used in problem solving.
- Database for research.
- Instructional resources on videotape, videodisc, and instructional television.
- Multimedia software and hardware used in student reports and productions.
- Download and analyze data from weather satellite via Internet resources.
- Review of basic skills and concepts using computer-based resources.

#### Arts and Music

- Computer drawing programs for creative expression.
- Multimedia production and portfolios.
- Use animation software.
- Database for research.
- Art history and appreciation involving sources on video and CD-ROM.
- Use of MIDI interface for music composition and performance.
- Creative music expression using multimedia resources.

#### Physical Education

- Research in health and physical education involving databases and other computer resources.
- Instructional resources on videotape, videodisc, and instructional television.

#### Media Center

- Computerized card catalog and circulation.
- Databases on CD-ROM.
- Telecommunications, including satellite television and local and world-wide online resources for research.
- Multiple computer stations for teacher/student use.
- Multimedia work stations.
- Central location of electronic resources.

## 5<sup>th</sup> Grade – 8<sup>th</sup> Grade

### Language Arts and Social Studies

- Word processing, spell check, thesaurus, and grammar checking software used in writing process.
- Database and telecommunication for research
- Organize, track, and investigate, and communicate progress in reading with databases and spreadsheets.
- Intervention, remediation, and reinforcement of language arts skills (use of various internet sites).
- Multimedia reports and productions with graphics, text, and sound.
- Creation of timelines of events.
- Desktop publishing of documents, reports, and other published materials.
- Software and online resources for map skills.
- CD-ROM and online resources for research.
- Instructional resources on videotape and instructional television (United Streaming).
- Simulation software used in problem solving.
- Individual and cooperative learning involving computer-based resources.
- Vocabulary review via computer.
- Digitized audio for language development.
- To brainstorm possible topics and narrow the focus by asking questions which identify a “driving question”.
- To develop a search strategy using keywords which defines the topic.
- To learn strategies for online searching which aid in the management and movement of data.
- To explain and use online resources that are appropriate for the learner and the topic.
- To organize and analyze information in order to draw conclusions and implications based on the online investigation.
- To utilize other print and non-print sources as necessary.
- To produce a product using online sources combined with other resources.
- To evaluate search results making a decision about accuracy of the data and reformulate the search if necessary.
- To learn to evaluate a web site.
- To become familiar with Internet procedure.
- To practice electronic mail skills to communicate online.
- To learn and to model ethical, legal, responsible behavior online.
- Desktop publishing of a newspaper.
- Desktop publishing of documents, reports, and other published materials.
- Desktop publishing of travel brochures and reports.

### Science and Math

- Keyboarding practice throughout the curriculum.
- Graphing calculators to discover concepts visually.
- Computer generated graphs.
- Download and analyze data from NASA and other related Internet sites.
- To develop a search strategy using keywords which define the topic.
- To learn strategies for online searching which aid in the management and movement of data.
- To explain and use online resources that are appropriate for the learner and the topic.
- To organize and analyze information in order to draw conclusions and implications based on the online investigation.
- To utilize other print and non-print sources as necessary.
- To produce a product using online sources combined with other resources.
- To evaluate search results making a decision about the accuracy of the data and reformulate the search if necessary.

- To learn to evaluate a web site.
- To become familiar with Internet procedure.
- To practice electronic mail skills to communicate with the online community (NASA).
- To learn and to model ethical, legal and responsible behavior in the online community.
- Database and spreadsheet software.
- Intervention, remediation and reinforcement of software for skill development (Accelerated Math).
- Simulation software used in problem solving.
- Database and telecommunications for research.
- Instructional resources on videotape, videodisc and instructional television (United Streaming).
- Multimedia software and hardware used in student reports and productions.
- Download and analyze data from weather satellite via Internet resources.
- Review of basic skills and concepts using computer-based resources.

### **Art, Music, PE, Health, and Life Skills**

- Practice keyboarding throughout the curriculum.
- Word processing, spell check, thesaurus, and grammar checking software used in the writing process.
- Word processing format.
- Art and music history and appreciation involving sources on video, CD-ROM, and United Streaming.
- Compact disks on musical classics with analysis and history of writing.
- Create music.
- Develop music library, sheet music, CD's, videos.
- Computer interfaces to measure pulse in training.
- Vocabulary review via computer.
- Computer drawing programs for creative expression and meaning.
- Design compositions.
- Multimedia production using still and live video and animation.
- Caloric analysis for physical fitness.
- Database for tracking of sports statistics.
- Spreadsheet to graph and analyze nutrients in different food groups.
- Database and telecommunication for research.
- To develop a search strategy using keywords which define the topic.
- To explain and use online resources that are appropriate.
- To organize and analyze information in order to draw conclusions and implications based on the online investigation.
- To utilize other print and non-print sources as necessary.
- To produce a product using online sources combined with other resources.
- To evaluate search results making a decision about accuracy of the data and reformulate the search if necessary.
- To learn to evaluate a web site.
- To become familiar with Internet procedure.
- To practice electronic mail skills to communicate online.
- To learn and to model ethical, legal, and responsible online behavior.

## 9<sup>th</sup> – 12<sup>th</sup> Grades

### Language Arts and Social Studies

- Well-written, visually pleasing documents using basic word processing skills and presentation software (MS Word, MS PowerPoint, MS Excel, MacroMedia Fireworks and Dreamweaver).
- Reports created on a computer with title page, outline, text, works cites and parenthetical referencing: indenting, use of variety of sizes and fonts, centering, setting margins, spell check, thesaurus, tabs, tab stops, pagination and spacing.
  - Write short stories
  - Write book reports
  - Create an original script for public performance
  - Research a famous person, place, or event
  - Write fictional autobiographies
  - Create a newspaper/newsletter from a time period you are studying
  - Create personal resume
  - Create a social issue position paper
  - Subject related multi-media presentation
  - Create travel brochure
  - Export documents for use in a web page

To ensure that all student-produced work is original, technology such as Turnitin.com will be utilized for monitoring.

Additional activities which will be incorporated into the curriculum are as follows:

- Create student-produced videos
- Create and update Educational Development Plans
- Complete a vocational inventory using Career Cruising
- Research potential vocational occupations using Career Cruising
- Accelerated Reading program used as a diagnostic tool for remedial placement
- Use textbook resources online
- Use online streaming videos and resources such as United Streaming

Students will know how to hook up an LCD projector, operate a video/digital camera, scanner, DVD burner.

### Math and Science

Integration of proper use of technology shall be part of the curriculum to emphasize the integral use in the daily lives of workers in these fields.

- Well-written, visually pleasing documents using basic word processing skills and presentation software (MS Word, MS PowerPoint, MS Excel, MacroMedia Fireworks and Dreamweaver).
- Reports created on a computer with title page, outline, text, works cites and parenthetical referencing: indenting, use of variety of sizes and fonts, centering, setting margins, spell check, thesaurus, tabs, tab stops, pagination and spacing.
  - Research a famous person, place, or event
  - Create a social issue position paper
  - Subject related multi-media presentation
  - Export documents for use in a web page
  - Recording of daily logs to keep data for evaluation
  - Writing of subject related paper on new concept for presentation
  - Presentation of lab results using multi-media
  - Use of spreadsheets to generate varied graphs from subject area
  - Use of graphs as a bridge between the concrete and abstract
  - Research a new or emerging topic in subject area

To ensure that all student-produced work is original, technology such as Turnitin.com will be utilized for monitoring.

Additional activities which will be incorporated into the curriculum are as follows:

- Create student-produced videos
- Research potential vocational occupations using Career Cruising
- Use textbook resources online
- Use online streaming videos and resources such as United Streaming
- All students will be provided TI graphing calculators for classroom use

Students will know how to hook up an LCD projector, operate a video/digital camera, scanner, DVD burner.

### **Arts, Music, Foreign Languages & Trades**

- Well-written, visually pleasing documents using basic word processing skills and presentation software (MS Word, MS PowerPoint, MS Excel, MacroMedia Fireworks and Dreamweaver).
- Reports created on a computer with title page, outline, text, works cites and parenthetical referencing: indenting, use of variety of sizes and fonts, centering, setting margins, spell check, thesaurus, tabs, tab stops, pagination and spacing.
  - Research a famous person, place, or event
  - Subject related multi-media presentation
  - Export documents for use in a web page

To ensure that all student-produced work is original, technology such as Turnitin.com will be utilized for monitoring.

Additional activities which will be incorporated into the curriculum are as follows:

- Create student-produced videos
- Research potential vocational occupations using Career Cruising
- Use online streaming videos and resources such as United Streaming
- Use of CAD with advanced drafting students
- Production of original music CD for distribution
- Use of MIDI enabled instruments and software to generate and edit music files
- Use foreign language online tutorials

Students will know how to hook up an LCD projector, operate a video/digital camera, scanner, DVD burner.

### **Physical Education, Psychology & Life Skills**

Well-written, visually pleasing documents using basic word processing skills and presentation software (MS Word, MS PowerPoint, MS Excel, MacroMedia Fireworks and Dreamweaver).

Reports created on a computer with title page, outline, text, works cites and parenthetical referencing: indenting, use of variety of sizes and fonts, centering, setting margins, spell check, thesaurus, tabs, tab stops, pagination and spacing.

- Research a famous person, place, or event
- Create a mental and/or physical health paper
- Subject related multi-media presentation
- Export documents for use in a web page

To ensure that all student-produced work is original, technology such as Turnitin.com will be utilized for monitoring.

Additional activities which will be incorporated into the curriculum are as follows:

- Create student-produced videos
- Use textbook resources online
- Use online streaming videos and resources such as United Streaming
- Use online personality testing online and resources such similarminds.com

Students will know how to hook up an LCD projector, operate a video/digital camera, scanner, DVD burner.

## **Publications**

Well-written, visually pleasing documents using basic word processing skills and presentation software (MS Word, MS PowerPoint, MS Publisher, Adobe PhotoShop, Elitevision, MacroMedia Fireworks and Dreamweaver).

Reports created on a computer with title page, outline, text, works cites and parenthetical referencing: indenting, use of variety of sizes and fonts, centering, setting margins, spell check, thesaurus, tabs, tab stops, pagination and spacing.

- Create a newspaper/newsletter from a time period you are studying
- Create personal resume
- Create a social issue position paper
- Create travel brochure
- Export documents for use in a web page
- Generate and publish the student yearbook
- Create school promotional material
- Create articles on various topics for publication

To ensure that all student-produced work is original, technology such as Turnitin.com will be utilized for monitoring.

Additional activities which will be incorporated into the curriculum are as follows:

- Create student-produced videos
- Research potential vocational occupations using Career Cruising
- Use online streaming videos and resources such as United Streaming

Students will know how to hook up an LCD projector, operate a video/digital camera, scanner, DVD burner.

## **Computer Science**

Instruction on how to use programs efficiently to create well-written, visually pleasing documents using basic word processing skills and presentation software (MS Word, MS Excel, MS Access, MS PowerPoint, MS Publisher, MacroMedia Fireworks, Flash and Dreamweaver).

- Create a newspaper/newsletter from a time period you are studying
- Create personal resume
- Create travel brochure
- Export documents for use in a web page
- Create school promotional material
- Multi-media presentation
- Develop and maintain a personal web site

Additional activities which will be incorporated into the curriculum are as follows:

- Introduction to programming languages such as Visual Basic, Java, HTML and C++
- Students will be given the opportunity to trouble shoot computer and network problems
- Create student-produced videos
- Students will be given the opportunity to experience new and emerging technology
- Research potential vocational occupations using Career Cruising
- Students will be given the opportunity to do video editing on subject related material
- Use online streaming videos and resources such as United Streaming
- Students will be given the opportunity to install and troubleshoot hardware and software

Students will know how to hook up an LCD projector, operate a video/digital camera, scanner, DVD burner.

# Appendix VI

## Teacher Technology Survey

Name \_\_\_\_\_  Elementary  Middle School  High School

### 1. How do you use video streaming (Internet based) resources in your classes? Check all that apply.

- Professional Development
- Writing Prompts
- Gather Information
- Raise Test Scores
- Meet Curriculum Goals
- Not at all
- Other \_\_\_\_\_

### 2. How do students use computers in your classes? Check all that apply.

- |  |  |
|--|--|
| <input type="checkbox"/> to organize and store information   | <input type="checkbox"/> to create visual presentations                              |
| <input type="checkbox"/> to collect data and perform measurements  | <input type="checkbox"/> to plan, draft, proofread, revise, and publish written text |
| <input type="checkbox"/> to perform calculations   | <input type="checkbox"/> to create models or simulations                             |
| <input type="checkbox"/> to manipulate/analyze/interpret data  | <input type="checkbox"/> for basic skill remediation                                 |
| <input type="checkbox"/> to support individualized learning  | <input type="checkbox"/> to create visual presentations                              |
| <input type="checkbox"/> to create visual displays of data/information (graphs, charts, maps)            | <input type="checkbox"/> to compensate for a disability or limitation                |
| <input type="checkbox"/> to create graphics or visual of non-data products (diagrams, pictures, figures) | <input type="checkbox"/> for accelerations skills                                    |
| <input type="checkbox"/> to communicate information as a result of investigations                        | <input type="checkbox"/> other (please specify)                                      |

### 3. Which items are on your wish list for your classroom?

- LCD Projector
- Web 2.0 Tools (Wikis, Blogs, etc)
- Document Camera
- Interactive Whiteboard
- Audio Amplification System
- More Computers
- Other

4. Approximately how often do you use these applications with your students?

| TOPIC                               | DAILY | ONCE A WEEK | ONCE EVERY TWO WEEKS | ONCE A MARKING PERIOD | ONCE OR TWICE A YEAR | NEVER | NOT AVAILABLE |
|-------------------------------------|-------|-------------|----------------------|-----------------------|----------------------|-------|---------------|
| Computers in general                |       |             |                      |                       |                      |       |               |
| Word processing package (WORD)      |       |             |                      |                       |                      |       |               |
| Spreadsheets (EXCEL)                |       |             |                      |                       |                      |       |               |
| Databases (ACCESS)                  |       |             |                      |                       |                      |       |               |
| Graphical Applications              |       |             |                      |                       |                      |       |               |
| Presentation software (Power Point) |       |             |                      |                       |                      |       |               |
| Desktop Publishing (Publisher)      |       |             |                      |                       |                      |       |               |
| Online Tests or Assessments         |       |             |                      |                       |                      |       |               |
| Search Engines (Google)             |       |             |                      |                       |                      |       |               |
| Multimedia Software                 |       |             |                      |                       |                      |       |               |
| Web 2.0 Tools (Blogs, Wikis, etc)   |       |             |                      |                       |                      |       |               |
| Intervention Software               |       |             |                      |                       |                      |       |               |
| Other: _____                        |       |             |                      |                       |                      |       |               |
|                                     |       |             |                      |                       |                      |       |               |

5. Rate your instructional comfort level with the following applications using a scale of 1-4.

**Comfort**

- 1=very comfortable
- 2=moderately comfortable
- 3=would need some help to feel comfortable
- 4=would need a lot of help to feel comfortable

| TOPIC                               | COMFORT LEVEL |
|-------------------------------------|---------------|
| Computers in general                |               |
| Word processing package (WORD)      |               |
| Spreadsheets (EXCEL)                |               |
| Databases (ACCESS)                  |               |
| Graphical Applications              |               |
| Presentation software (Power Point) |               |
| Desktop Publishing (Publisher)      |               |
| Online Tests or Assessments         |               |
| Search Engines (Google)             |               |
| Multimedia Software                 |               |
| Web 2.0 Tools (Blogs, Wikis, etc)   |               |
| Intervention Software               |               |
| Other: _____                        |               |

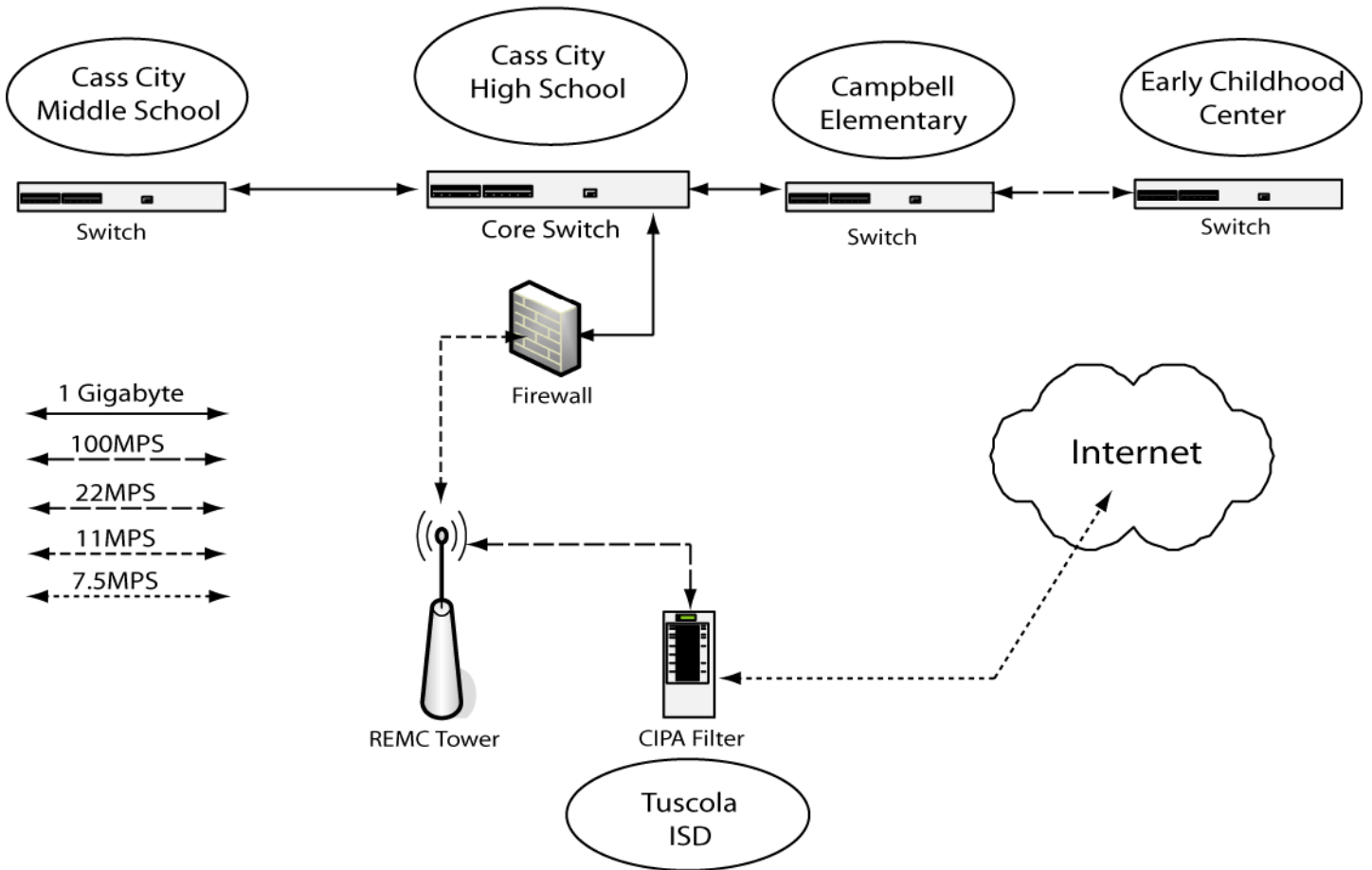
6. Are you willing to share your ideas and knowledge with others?

\_\_\_ Yes      \_\_\_ No

# Appendix VII

## Cass City Public Schools

### WIDE AREA NETWORK DIAGRAM



# Appendix VIII

## METS K-8 Special Education Checklist

Type of Assessment:    O = Teacher Observation                      P = Portfolio Evidence  
                                     A = Formal Assessment    C = Technology Class

| Standards and Benchmarks   | Type of Assessment | Date Completed |
|--|--------------------|----------------|
| <b>SECTION 1: Basic Operations and Concepts</b>  |                    |                |
| <b>A. Students will demonstrate a sound understanding of the nature and operation of technology systems.</b>   |                    |                |
| K-2a. Students understand that people use many types of technology in their daily lives.   |                    |                |
| K-2b. Students identify common uses of technology found in daily life.   |                    |                |
| K-2c. Students recognize, name, and label the major hardware components in a computer system.  |                    |                |
| K-2d. Students identify the functions of the major hardware components in a computer system.   |                    |                |
| K-2e. Students discuss the basic care of computer hardware and various media types.  |                    |                |
| K-2f. Students proofread and edit their writing using appropriate resources including dictionaries and a class developed checklist both individually and as a group. |                    |                |
| 3-5a. Students discuss ways technology has changed life at school and at home.   |                    |                |
| 3-5b. Students discuss ways technology has changed business and government over the years.   |                    |                |
| 3-5c. Students recognize and discuss the need for security applications to help protect information and to keep the system functioning properly.                     |                    |                |
| 6-8a. Students understand that new technology tools can be developed to do what could not be done without the use of technology.                                     |                    |                |
| 6-8b. Students describe strategies for identifying, and preventing routine hardware and software problems that may occur during everyday technology use.             |                    |                |
| 6-8c. Students identify changes in hardware and software systems over time and discuss how these changes affected various groups.                                    |                    |                |

| Standards and Benchmarks  | Type of Assessment | Date Completed |
|---|--------------------|----------------|
| 6-8d. Students discuss common hardware and software difficulties and identify strategies for trouble-shooting and problem solving.  |                    |                |
| 6-8e. Students identify characteristics that suggest that the computer system hardware and software might need to be upgraded   |                    |                |
| <b>B. Students are proficient in the use of technology.</b>   |                    |                |
| K-2a. Students use various age-appropriate technologies for gathering information.  |                    |                |
| K-2b. Students use a variety of age-appropriate technologies for sharing information.   |                    |                |
| K-2c. Students recognize the functions of basic file menu commands.   |                    |                |
| 3-5a. Students know how to use basic input/output devices and other peripherals.  |                    |                |
| 3-5b. Students know proper keyboarding positions and touch-typing techniques.   |                    |                |
| 3-5c. Students manage and maintain files on a hard drive or the network.  |                    |                |
| 3-5d. Students demonstrate proper care in the use of hardware, software, peripherals, and storage media.  |                    |                |
| 3-5e. Students know how to exchange files with other students using technology.   |                    |                |
| 3-5f. Students identify which types of software can be used most effectively for different types of data, for different information needs, or for conveying results to different audiences. |                    |                |
| 3-5g. Students identify search strategies for locating needed information on the internet.  |                    |                |
| 3-5h. Students proofread and edit writing using appropriate resources and grade level appropriate checklists both individually and in groups.   |                    |                |

| Standards and Benchmarks  | Type of Assessment | Date Completed |
|---|--------------------|----------------|
| 6-8a. Students use proper keyboarding posture, finger position, and touch-typing techniques to improve accuracy, speed, and general efficiency in operating a computer. |                    |                |
| 6-8b. Students use accurate technology terminology.   |                    |                |
| 6-8c. Students use a variety of tools to maximize the accuracy of technology-produced products.   |                    |                |
| 6-8d. Students identify a variety of information storage devices and provide a rationale for using a certain device for a specific purpose.                             |                    |                |
| 6-8e. Students identify technology resources that assist with various consumer related activities.  |                    |                |
| 6-8f. Students can identify appropriate file formats for a variety of applications.   |                    |                |
| 6-8g. Students can use basic utility programs or built-in application functions to convert file formats.  |                    |                |
| 6-8h. Students proofread and edit writing using appropriate resources and grade level appropriate checklists both individually and in groups.                           |                    |                |
| <b>SECTION 2: Social, Ethical, and Human Issues</b>   |                    |                |
| <b>A. Students understand the ethical, cultural, and societal issues relating to technology.</b>  |                    |                |
| K-2a. Students identify common uses of information and communication technologies.  |                    |                |
| K-2b. Students discuss advantages and disadvantages of using technology.  |                    |                |
| 3-5a. Students identify cultural and societal issues relating to technology.  |                    |                |
| 3-5b. Students discuss how information and communication technology supports collaboration, productivity, and lifelong learning.  |                    |                |
| 3-5c. Students discuss how various assistive technologies can benefit individuals with disabilities.  |                    |                |

| Standards and Benchmarks   | Type of Assessment | Date Completed |
|--|--------------------|----------------|
| 3-5d. Students discuss the accuracy, relevance, appropriateness, and bias of electronic information sources.                               |                    |                |
| 6-8a. Students understand the potential risks and dangers associated with on-line communications.  |                    |                |
| 6-8b. Students identify security issues related to e-commerce.   |                    |                |
| 6-8c. Students describe possible consequences and costs related to unethical use of information and communication technologies.            |                    |                |
| 6-8d. Students discuss the societal impact of technology in the future.  |                    |                |
| <b>B. Students practice responsible use of technology systems, information, and software.</b>  |                    |                |
| K-2a. Students recognize that using a password helps protect the privacy of information.   |                    |                |
| K-2b. Students discuss scenarios describing acceptable and unacceptable uses of age-appropriate technology.                                |                    |                |
| K-2c. Students discuss the consequences or irresponsible uses of technology resources at home or at school.                                |                    |                |
| 3-5a. Students discuss scenarios describing acceptable and unacceptable uses of technology and describe consequences of inappropriate use. |                    |                |
| 3-5b. Students discuss basic issues regarding appropriate and inappropriate uses of technology and related laws.                           |                    |                |
| 3-5c. Students use age-appropriate citing of sources for electronic reports  |                    |                |
| 3-5d. Students identify appropriate kinds of information that should be shared in public chat rooms.                                       |                    |                |
| 3-5e. Students identify safety precautions that should be taken while on-line.   |                    |                |

| Standards and Benchmarks  | Type of Assessment | Date Completed |
|---|--------------------|----------------|
| 6-8a. Students provide accurate citations when referencing information from outside sources in electronic reports.  |                    |                |
| 6-8b. Students discuss issues related to acceptable and responsible use of technology.  |                    |                |
| <b>C. Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.</b>                      |                    |                |
| K-2a. Students understand that technology is a tool to help them complete a task.   |                    |                |
| K-2b. Students understand that technology is a source of information, learning, and entertainment.  |                    |                |
| K-2c. Students can identify places in the community where one can access technology.  |                    |                |
| 3-5a. Students explore various technology resources that could assist them in pursuing personal goals.  |                    |                |
| 3-5b. Students identify technology resources and describe how those resources improve the ability to communicate, increase productivity, or help them achieve personal goals. |                    |                |
| 6-8a. Students use technology to identify and explore various occupations or careers.   |                    |                |
| 6-8b. Students discuss present and future uses of technology to support personal pursuits, and lifelong learning.   |                    |                |
| 6-8c. Students identify uses of technology to support communication with peers, family, or school personnel.  |                    |                |
| <b>SECTION 3: Technology Productivity Tools</b>   |                    |                |
| <b>A. Students use technology tools to enhance learning, increase productivity, and promote creativity.</b>   |                    |                |
| K-2a. Students know how to use a variety of productivity software to convey ideas and illustrate concepts.  |                    |                |

| Standards and Benchmarks   | Type of Assessment | Date Completed |
|--|--------------------|----------------|
| K-2b. Students will be able to recognize the best type of productivity software to use for a certain age-appropriate tasks.                                      |                    |                |
| 3-5a. Students know how to use menu options in applications to print, format, add multimedia features; open, save, manages files; and use various grammar tools. |                    |                |
| 3-5b. Students know how to insert various objects into word processing documents, presentations, or web documents.   |                    |                |
| 3-5c. Students use a variety of technology tools and applications to promote creativity.   |                    |                |
| 3-5d. Students understand that existing technologies are the result of human creativity.   |                    |                |
| 6-8a. Students apply common software features to enhance communication and to support creativity.  |                    |                |
| 6-8b. Students use a variety of resources, including the internet, to increase learning and productivity.  |                    |                |
| 6-8c. Students explore basic applications that promote creativity.   |                    |                |
| 6-8d. Students use available utilities for editing pictures, images, or charts.  |                    |                |
| <b>B. Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.</b>     |                    |                |
| K-2a. Students are aware of how to work with others when using technology tools to convey ideas or illustrate simple concepts relating to a specified project.   |                    |                |
| 3-5a. Students collaborate with classmates using a variety of technology tools to plan, organize, and create a group project.                                    |                    |                |
| 6-8a. Students use collaborative tools to design, develop, and enhance materials, publications, or presentations.  |                    |                |

| Standards and Benchmarks   | Type of Assessment | Date Completed |
|--|--------------------|----------------|
| <b>SECTION 4: Technology Communication Tools</b>   |                    |                |
| <b>A. Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.</b>  |                    |                |
| K-2a. Students will identify procedures for safely using basic telecommunication tools with assistance from teachers, parents, or student partners.                                    |                    |                |
| 3-5a. Students use basic telecommunication tools for collaborative projects with other students.   |                    |                |
| 6-8a. Students use a variety of telecommunication tools or other online resources to collaborate interactively with peers, experts, and other audiences.                               |                    |                |
| <b>B. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.</b>  |                    |                |
| K-2a. Students know how to use age-appropriate media to communicate ideas to classmates, families, and others.   |                    |                |
| K-2b. Students will know how to select media formats with assistances from teachers, parents or student partners to communicate and share ideas with classmates, families, and others. |                    |                |
| 3-5a. Students use a variety of media and formats to create and edit products to communicate information and ideas to various audiences.   |                    |                |
| 3-5b. Students identify how different forms of media and formats may be used to share similar information, depending on the intended audience.   |                    |                |
| 6-8a. Students create a project using a variety of media and formats to present content information to an audience.  |                    |                |
| <b>SECTION 5: Technology Research Tools</b>  |                    |                |
| <b>A. Students use technology to locate, evaluate, and collect information from a variety of sources.</b>  |                    |                |

| Standards and Benchmarks   | Type of Assessment | Date Completed |
|--|--------------------|----------------|
| K-2a. Students know how to recognize the Web browser and associate it with accessing resources on the internet.  |                    |                |
| K-2b. Students will use a variety of technology resources to locate or collect information.  |                    |                |
| 3-5a. Students use Web search engines and built-in search functions of other various resources to locate information   |                    |                |
| 3-5b. Students describe basic guidelines for determining the validity of information accessed from various sources.  |                    |                |
| 6-8a. Students use a variety of Web search engines to locate information.  |                    |                |
| 6-8b. Students evaluate information from various online resources for accuracy, bias, appropriateness, and comprehensiveness.                                    |                    |                |
| 6-8c. Students can identify types of internet sites based on their domain names.   |                    |                |
| <b>B. Students use technology tools to process data and report results.</b>  |                    |                |
| K-2a. Students will interpret simple information from existing age-appropriate electronic databases with assistance from teachers, parents, or student partners. |                    |                |
| 3-5a. Students know how to independently use existing databases to locate, sort, and interpret information on an assigned topic.                                 |                    |                |
| 3-5b. Students perform simple queries on existing databases and report results on an assigned topic.   |                    |                |
| 6-8a. Students know how to create and populate a database.   |                    |                |
| 6-8b. Students can perform queries on existing databases.  |                    |                |
| 6-8c. Students know how to create and modify a simple database report.   |                    |                |

| Standards and Benchmarks   | Type of Assessment | Date Completed |
|--|--------------------|----------------|
| <b>C. Students evaluate and select new information resources and technological innovations bases on the appropriateness to specific tasks.</b>   |                    |                |
| K-2a. Students can provide a rationale for choosing one type of technology over another for completing a specific task.  |                    |                |
| 3-5a. Students identify appropriate technology tools and resources by evaluating the accuracy, appropriate- ness, and bias of the resource.  |                    |                |
| 3-5b. Students compare and contrast the functions and capabilities of the word processor, database, and spreadsheet for gathering data, processing data, per- forming calculations, and reporting results. |                    |                |
| 6-8a. Students evaluate new technology tools and resources and determine the most appropriate tool to use for accomplishing a specific task.   |                    |                |
| <b>SECTION 6: Technology problem-solving and decision-making tools</b>   |                    |                |
| <b>A. Students use technology resources for solving problems and making informed decisions.</b>  |                    |                |
| K-2a. Students discuss how to use technology resources to solve age-appropriate problems.  |                    |                |
| 3-5a. Students use technology resources to access information that can assist them in making informed decisions about everyday matters.  |                    |                |
| 6-8a. Students use database or spreadsheet information to make predictions, develop strategies, and evaluate decisions to assist them with solving a basic problem.  |                    |                |
| <b>B. Students employ technology in the development of strategies for solving problems in the real world.</b>  |                    |                |
| K-2a. Students identify ways that technology has been used to address real-world problems.   |                    |                |

| Standards and Benchmarks  | Type of Assessment | Date Completed |
|---|--------------------|----------------|
| 3-5a. Students use information and communication technology tools to collect, organize, and evaluate information to assist with solving real-life problems.   |                    |                |
| 6-8a. Students describe the information and communication technology tools to use for collecting information from different sources, analyze their findings, and draw conclusions for addressing real-world problems. |                    |                |
| Other:  |                    |                |
| Other:  |                    |                |
| Other:  |                    |                |

# Acceptable Use Policy for Cass City Public Schools

The use of technology is a privilege and as such may be revoked at any time for inappropriate use. Technology is a tool intended as an educational enhancement.

## It is the user's responsibility to:

- ✓ Accept the responsibility for the preservation and care of the hardware and/or software, including all files stored or printed under his/her user account.
- ✓ Make sure no hardware or software is destroyed, modified or abused in any way.
- ✓ Avoid intentionally seeking information on, obtaining copies of, modifying files, data or passwords belonging to other users, or misrepresenting other users.
- ✓ Ensure that your username and password is kept confidential.
- ✓ Refrain accessing any pornographic or inappropriate material or files dangerous to the integrity of the computer systems.
- ✓ Keep programs of a viral nature off any school equipment. The user will be held accountable for any deliberate attempts at knowingly, installing and/or running a computer virus.
- ✓ Keep pornographic materials, inappropriate files and files known to carry harmful viruses off school premises.
- ✓ Keep hardware and software from being removed from school premises.
- ✓ Make sure that all food and drinks are kept away from all hardware and software.
- ✓ Maintain the integrity of the private electronic mail system by reporting all violations of privacy.
- ✓ Ensure all e-mail sent or received by him/her does not contain inappropriate or dangerous material. Hate mail, harassment, discriminatory remarks, and other anti-social behaviors are prohibited.
- ✓ Monitor all printed documents as a log of printed documents is kept. Each user is responsible for all files printed under his/her user account.
- ✓ Avoid printing ANY inappropriate material on school premises otherwise deemed inappropriate for school use.
- ✓ Report any violations to a staff member and/or the Technology Director.

## Internet

Internet usage is encouraged to assist in the gathering, collaboration, and/or exchange of information to facilitate personal academic growth. Using the Internet for any of the following is prohibited: commercial or for-profit purposes, extensive use for personal and private business, product advertisement or political lobbying.

Cass City Public Schools has and will continue to comply with the requirements of the Children's Internet Protection Act, as codified at 47 U.S.C. § 254(h) and (1).

It is the District's intent to preserve network bandwidth and improve network response times by limiting Internet access to educational-related sites. The filtering method used to block and filter inappropriate sites and content is a FortiGuard appliance. **Attempted use of avoidance techniques to knowingly bypass the Internet content filter is strictly prohibited and will result in disciplinary action.**

## Violations

- Disciplinary actions are based on the discipline procedures of Cass City Public Schools. Staff intervention strategies such as teacher/student conferences, auxiliary staff/student intervention and teacher/parent contacts are to be made for acceptable use policy violations when referring for administrative action.
- The guidelines on the preceding pages are not all inclusive. A user who commits an act of misconduct, which is not listed, may also be subject to disciplinary action.
- Non student/community users are responsible for abiding by all the policies and procedures set forth in this document. Failure to do so may result in the loss of use privileges.
- Repeat violations may warrant permanent removal of use privileges on the Cass City Public School local area network (LAN) and Internet networks.

**Students and Parents will review and sign the AUP at the beginning of every school year before they have access to District resources.**

Date: \_\_\_\_\_

Student Name: \_\_\_\_\_

Student Signature: \_\_\_\_\_

Parent/Guardian Name: \_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_

## Technology Plan Amendment 12/26/2009

### **Broadband Plan Summary:**

Air Advantage, REMC 10 and Saginaw Valley State University, have jointly filed an ARRA “stimulus” broadband grant/loan application. If funded, this grant will install over 300 miles of fiber optic cable into the Thumb Region over a 3 year period, including a direct fiber connection to every public school district not already connected.

Each district will connect to this network via a 10Gbps layer 3 Switch with either an internal or external fiber optic transceiver. Each local district 10Gbps connection will connect directly to an internal or external fiber optic transceiver at the ISD. The 3 REMC 10 ISDs will also be interconnected via 10Gbps fiber optic transceivers in addition to being connected to St. Clair RESA and Bay-Arenac ISD.

Other agencies in the local community will potentially be connected to the local district via a 1Gbps fiber optic transceiver or a wireless device needing a 10/100Mbps Ethernet Connection.

### **Equipment Details:**

To support these connections a high-end layer 3 switch is needed at our district. This switch will have a minimum of 2 module slots that can each support 10Gbps transceiver modules allowing for either copper or fiber connections and a minimum of 1 – internal or external 10Gbps fiber optic transceiver to connect to the ISD. The switch will also have a minimum of 48 copper 10/100/1000 Mbps ports.

The ISD will require a chassis based solution with redundant power supplies, enough 10Gbps module slots to support all local districts plus the interconnection to one or more other ISDs, enough 10Gbps fiber optic transceivers to support each of the local district and ISD to ISD connections, 48 copper 10/100/1000 Mbps ports and enough 1Gbps fiber optic transceivers to connect to other non-school agencies in the area.

### **Estimated Equipment Budget: (prices and quantities subject to RFP)**

| <b>Item</b>   | <b>Estimated Cost</b> | <b>USF Portion*</b> | <b>Grant Portion**</b> |
|---|-----------------------|---------------------|------------------------|
| LEA Switch (1 per LEA)  | \$13,500              | \$10,800            | \$2,700                |
| LEA 10Gbps Fiber Trans<br>(qty 1)   | \$7,300               | \$5,840             | \$1,460                |
| LEA 1Gbps Fiber Trans.<br>(qty 5)   | \$3,775               | \$0                 | \$3,775                |
| ISD Switch (1 per ISD)  | \$42,000              | \$33,600            | \$8,400                |
| ISD 10Gbps Fiber Trans<br>(qty varies by ISD, qty 10<br>used for budget ) | \$73,000              | \$58,400            | \$14,600               |
| ISD 1Gbps Fiber Trans.<br>(qty 5)   | \$3,775               | \$0                 | \$3,775                |

\*USF Portion is contingent upon USF approval for priority 2 equipment and is based on 80% REMC 10 consortium discount level.

\*\*If USF discounts are not approved for any reason, the grant portion will become 100% of the funding source.