Technology Plan

Cover Page

Section 1

District: Grand Rapids Child Discovery Center
640 5th Street NW
Grand Rapids, MI 49504

Telephone: 616-459-0330

District Code: 41921

School Code: 08793

Start Date: July 1, 2010

End Date: June 30, 2013

Contact Person: David R Hill
Telephone: 616-459-0330
Fax: 616-732-4437
Email: davidhi5@yahoo.com

Intermediate School District: Kent ISD

URL: www.childdiscoverycenter.org

Introductory Material **Section 2**

The Mission of the Grand Rapids Child Discovery Center is to **continuously expand** the potential of **children**, the experiences of **educators** and the involvement of **parents** within the **diverse community** of Grand Rapids, Michigan.

The Vision is to base all decisions on the principles of **Reggio Emilia** incorporating **current research** on learning as well as **developmentally appropriate practice.**

The Grand Rapids Child Discovery Center is based on the principles of the Reggio Emilia Approach. The school was started in August of 2000 serving children in K, 1st and 2nd for just that reason. Parents and educators joined together to develop an elementary school that, while accountable to the Michigan Core Curriculum Standards and Federal Expectations, was free to base all its decisions on the theories and ideas of the Reggio Emilia approach. The parents had experienced the methods and practices in a preschool setting with their children and simply did not want the wonderful experience to end in Kindergarten. Currently, the school serves 192 students in grades K-5.

Demographics: The Grand Rapids Child Discovery Center is located on the northwest side of Grand Rapids, Michigan. The demographics of the school approximate the demographics of the city.

	2008-09	2009-10
Asian American	1%	3%
African American	24%	19%
Native American	4%	5%
Hispanic	22%	22%
White	49%	51%

Social Economic Status is indicated by Free or Reduced Lunch applications. Families qualifying for free and reduced lunch: 68%

Vision and Goals

Section 3

The philosophy of a Reggio Emilia inspired education relies heavily on project based learning. Technology usage and access would serve as a motivational, instructional and investigative medium to support children's innate interest and ability to connect to the world around them.

Goals:

Students will...

1. Apply word processing software for writing
2. Utilize Internet search engines to research topics
3. Utilize digital photography to help document studies and research
4. Practice Language Arts and math skills necessary for thinking on higher levels (using Encyclopedia Britannica and teacher approved websites)
5. Explore the phenomenon of shadow and light, sound and movement through technology
6. Individually build plans designed to target areas of improvement connected to the MEAP that may include reading, writing, or math software
7. Have access to various learning models

Teachers will...

1. Learn how to manage and organize files, photos, and other documentation
2. Learn new ways to implement technology into their practice
3. Incorporate technology into specific aspects of the instructional day, e.g. teaching points
4. Collaborate with children to co-construct multimedia presentations

Parents will...

1. Work in collaboration with teachers/staff to apply/write technology grants
2. Support their children in their relationship with technology

In summary, the broad goals listed above support the mission and the vision of the school. This way of working is dependent on technology to meet the specific goals set each year. In addition, if this innovative approach is to become a model for school reform, it must be supported by technology in order for educators to see the possibility of a constructivist, project based approach where documentation is a cornerstone. The annual school improvement plan includes next step goals that are leading to the very concepts that the mission and vision articulate. In general all three subjects, children, parents and teachers, have a right to a high quality experience that honors them and prepares them to think well in the 21st century.

I. Curriculum

Section 4

As educators we must not only understand the role of technology in the classroom, but we must also realize the vehicle it is for endless possibilities. Technology is not only a medium and language for us, but it can also be a great resource for understanding other mediums. Integrating technology into the curriculum will expand classroom resources and enhance the learning process. It can be a means of communication, an invaluable research tool, a storage facility, and a help companion to the visual, musical, and tactile learners. The following are ways of integrating technology into the four curriculum content areas:

1. The Michigan Core Curriculum standards will be used in each of the four content areas. The standards include computer basics, multimedia, publishing exploration, and telecommunications.

2. All students will have the opportunity to, as part of the instruction provided in Language Arts, Mathematics, Social Studies, and Science:

- Apply word processing software for writing
- Utilize Internet search engines to research topics
- Utilize digital photography to help document studies and research
- Practice Language Arts and math skills necessary for thinking on higher levels (using Encyclopedia Britannica and teacher approved websites)
- Explore the phenomena of shadow and light, sound and movement through technology
- Individually build plans designed to target areas of improvement connected to the MEAP test that may include reading, writing, or math software
- Have access to various learning models

3. Parents will: stay apprised of student work and projects through email notifications, and classroom websites.

Technology will be delivered in different ways depending on the grade level and developmental levels deemed appropriate for each student.

Standards based technology goals in Kindergarten and First Grade:

- The learner will recognize, name and be able to label major hardware components in a computer system (e.g. computer, monitor, keyboard, mouse, and printer).
- The learner will recognize the functions of basic file menu commands (e.g. new, open, close, save, and print).
- The learner will understand that technology is a source of information, learning, and entertainment.
- The learner will proofread and edit his/her writing using appropriate resources including dictionaries and a class developed checklist -- both individually and as a group.
- The learner will know to recognize the Web Browser and associate it with accessing resources on the Internet.
- The learner will identify procedures for safely using basic telecommunication tools (e.g. email, and phone) with assistance from teachers, parents, or student partners.

Standards based technology goals in Second and Third Grade:

- The learner will use various age appropriate technologies for gathering information.
- The learner will use a variety of age appropriate technologies for sharing information.
- The learner will use a variety of resources to locate or collect information relating to a specific curricular topic with assistance from teachers.
- The learner will be able to demonstrate knowledge of proper keyboarding positions and touch-typing techniques.
- The learner will be able to demonstrate knowledge of Web search engines and which ones to use for finding valid information (e.g., web site, dictionary, on-line newspaper, CD-ROM).
- The learner will be able to demonstrate knowledge of 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.
- The learner will be able to demonstrate knowledge of existing databases (e.g., library catalogs, electronic dictionaries, encyclopedias) to locate, sort, and interpret information on an assigned topic.

Standards based technology goals in Fourth and Fifth Grade:

- The learner will plan, organize, and create an individual/group project using at least two programs and or software to demonstrate how to insert objects, save, open, manage and print files.

- The learner will identify and discuss how technology varies by user and culture and be able to verify appropriate electronic sources built for safety and research.
- The learner will be able to use the Web search engines as an evaluation tool and to use word processing, spreadsheets, and processing data.
- The learner will be able to use a variety of formats to create a student led Discovery Website school wide.
- The learner will be proficient in basic computer operations and concepts. The student will know how to save, retrieve and exchange files (e.g., email attachments, flash drives, documents saved), the learner will also demonstrate proficiency in Microsoft Office (e.g., word, excel) and know how to proofread and edit writing (e.g. spell check).

Each classroom teacher will be responsible for delivery and coverage of technology goals and standards for his/her classrooms.

I. Curriculum

Section 5

The following strategies will integrate technology into the curriculum and instruction for purposes of improving student academic achievement. A timeline for the integration is provided in Section IV J. The improvement in student scores on standardized tests is directly tied to the motivation of students to be engaged and responsible for learning.

1. Students will have access to:
    - Classroom computers and printers will be used to understand basic uses of technology equipment and to familiarize themselves with the programs available; e.g. research, Internet use, Microsoft Office, etc.
    - Search engines and filters will be used to ensure safety and to experience the copious amounts of information available through them.
    - Digital cameras will be used to document research and also to have knowledge of how to upload, store, save, and print pictures.
    - Projectors will be used to display research projects, PowerPoint's, and as a general tool for giving and sharing information.
    - Overhead projectors will be used to give shadow lights, and to give and share information.
    - Software will be used to learn and share information.

2. Students will master computer basics and become computer literate so that technology will be an effective tool for them.

3. Students will be equipped to conduct research within long term, engaging projects.

4. Students will utilize digital photography within research projects.

5. Software listed below has been purchased to enhance student achievement:
    - Online version of Encyclopedia Britannica (K-12)

I. Curriculum

Section 6

The following steps have and will be taken to further knowledge of new technology to enhance instruction and increase student performance:

1. A staff member attended the MACUL conference (2010).

2. Staff participated in a professional development session regarding new technology that was attained from the statewide MACUL conference. Ideas for using technology in the classroom included: *Jing* and *Google Earth*.

3. The staff uses KISD's *Curriculum Crafter* to obtain and access necessary materials for assessments, and links to sites to download any additional information on the topic.

4. Staff will partner with KISD for other appropriate uses of technology and professional development for technology.

I. Curriculum

Section 7

In the Reggio Emilia approach of working in a school setting, parents are considered to be an integral component of each child's learning and in the development of the entire school. It is a parent's right as well as responsibility to collaborate and join the school on all levels. Technology will help parents connect to what each child is working on as well as the progress of the entire school. The role of the parents is described below.

1. Parents will have access to computer equipment at the school. Parents may use the Resource Room during the day (except during staff lunch times) and their child's classroom with communication from the teachers.

2. Parents will be involved in the decision-making process regarding acquisition and use of advanced technology as well as software.

3. Parents will develop and share their own theories about computer use and media use with their children.

4. The Family Team (parent organization) will utilize a database for contacts and interests.

Regarding disseminating the technology plan, parents will be informed via notices in the school newsletter, with hard copies available in the school office. It can also be viewed on our school website. Technology (e.g. emails, electronic versions of the school newsletter, etc) will be used to communicate various events, including individual classroom news, homework, parent/teacher communication, and student progress.

The Technology Plan will be assessed annually throughout the School Improvement process of which parents are a part.

I. Curriculum

Section 8

Not Applicable

The school is a single site K-5 public charter school and does not partner with any adult literacy service providers.

II. Professional Development

Section 9

At the Child Discovery Center, we believe that student success is directly linked to the acquired expertise of the teachers. With co-construction, student achievement outcomes are often better than expected, but it is critical that teachers be able to frame questions and provide pertinent experiences with technology. Therefore, Professional Development is a must. As stated in the first of eight State Objectives for Technology: Leadership is important "in order to expand and develop transformative learning environments that increase student achievement." Professional Development will be provided to teachers and other staff in the following ways:

1. At least one classroom teacher will attend the annual MACUL technology conference and share new ideas/approaches with fellow teachers and staff. A staff member will attend the MACUL Leadership Conference in June 2010.

2. Year 1: All staff will train in current technology available to the school;

   Year 2: All staff will train in new technology available to the school;

   Year 3: Teachers and staff will assess and evaluate student achievement in relation to our grade level technology goals.

3. All staff will articulate at least one professional goal within the context of the mission/vision of the school connected to state or national technology standards.

II. Professional Development

Section 10

There are a variety of activities, resources, and committee roles and responsibilities that directly support the effective use of technology within the Child Discovery Center. Below are the ways our school currently supports technology and some that we would like to add to support the technology plan:

1. The school has a policy regarding the use of technology and the school board adopted it.
2. Printed materials and manuals are available and accessible to all parents, teachers, support staff, and students.
3. The school has a well developed website that will also make visible the plan and manuals etc... www.childdiscoverycenter.org
4. The staff and parents will collaborate to review and select software.
5. The technology plan will be supported through ongoing collaborative planning meetings, including evaluating staff goals.

III. Infrastructure, Hardware, Technical Support, and Software Section 11

Current

The Child Discovery has a single Windows 2000 Server that is functioning as a file server as well as domain controller. This server is also being utilized for the grading software (Skyward) as well as miscellaneous other required network applications. This server consists of 5 hard drives, 2 arrays. The system volume is located on mirrored 73GB SCSI hard drives. The primary data volume is stored on 3 73GB SCSI hard drives in RAID5. There is also an additional external storage unit that is currently providing 1TB of additional storage for network shared documents as well as picture archives.

Email and web are currently being hosted offsite by Trivalent Group Inc. This also includes anti-spam filtering to help ensure only proper emails come into the network as well as increase user efficiency.

There are currently 34 desktop computer workstations throughout the school connected to the network. 12 computer workstations are used by office and instructional staff. The remaining 22 workstations are housed in six classrooms.

The network comprised of various unmanaged network switches, centrally wired in the basement of the building. There are additional small expanders located in rooms where additional network connections were required. The router is a Netgear WGR614 Version 9. Wireless is currently not established in the building. High-speed Internet accessibility is being provided via a half T1 connection from TDS.

The school uses five phone lines, including one fax line.

Future

Future planning for the network would include upgrading all equipment over the next three years, and a server replacement (leased) in the next fiscal year.
A new server would include a virtualized platform to expand our ability to react to the changing requirements of our students. Initially the start up configuration would include at least four virtual servers for splitting up the current functions of the existing server in place. This will also allow for growth and increase the speed of the network functions and server processes.

We will also be upgrading our anti-virus software solution to include a new solution that will be completely managed by the server. This will allow for better tracking and quicker responses to virus threats on the Internet.

The workstations lease will be coming up in the next fiscal year. We will be looking to lease new workstations at that time to refresh the computers on the network as well as the software. We are also looking to add additional laptops for classroom use to be contained on one or two roll around carts that would increase the learning experience for the children. This accompanied with new teaching guidelines will help to ensure the students receive a safe and proper computing experience. A wireless Internet system will need to be installed when the laptops are made available.

The installation of a new firewall and web filtering appliance will be installed, with the new server, to also help with monitoring the web traffic from the students as well as to prevent exposure to unwanted material that is located on the internet.

Refresh Cycle

The proposed and planned network refresh cycle is every three to five years, rotating all network equipment and upgrading to the latest software and hardware platforms to support the latest teaching methods. This will allow us to utilize the best and proven teaching methods when using computers. This will also help budget and manage the IT spending over a given time span without having impulse and unnecessary spending sporadically.

Technical Support

Technical support is and will be provided by **Kraft Business Systems.** They currently provide copier and printer maintenance as well as IT support for our servers and workstations on an "on call" basis. This provides added benefit for our network integration with the new multi-function printer devices that are installed on the network to ensure proper interaction with the servers and workstations. Using this method we have been able to utilize semi-automated grading software to assist with grading tests and processing reports into the system.

III. Infrastructure, Hardware, Technical Support and Software Section 12

Future Plans for Technology Access

The Grand Rapids Child Discovery Center (GRCDC) aspires to the development of a technology rich environment that will provide:

1) Technology literate students with ready access to technologies that support the collection and analysis of information and the creation of thought-filled content;
2) Technology empowered teachers with access to technologies that enhance their instruction in powerful ways informed by co-construction; and
3) Technology enabled administrators and support staff able to effectively manage school operations and monitor academic progress at the student, classroom, and school levels.

The staff and leadership of the GRCDC understand that computer technology is a potentially powerful tool capable of enhancing learning, productivity, and organizational effectiveness when systems are appropriately designed and implemented. Based on the principles of its Reggio-Emilia educational approach, the school will apply the following criteria to decisions related to the acquisition and application of computer hardware and software:

1) Instructional/curricular requirements
2) Operational requirements
3) MDE standards and guidelines/industry standards
4) Total cost/effect on operational budget
5) Scalability
6) Return on Investment (ROI)

as measured by the impact on student learning potential and ability to further the mission and vision of the GRCDC.

The establishment and application of these criteria will ensure the most effective use of technology and financial resources with the ultimate goal of improving student performance.

By leveraging the school's financial resources through the use of leasing and re-thinking the use of externally acquired funding, a new hardware model has been developed to maximize student access to technology. Based on this model, GRCDC will have the capacity for acquiring the following technology using primarily operational funding by 2013 (based on projected enrollment).

Alignment with Instruction

The consensus model of decision making at GRCDC will allow the school's leadership and staff to collaboratively determine the best uses for additional technology within the school. Given this building level decision making ability, technology related decisions must be made with intention and be subject to a clear evaluation process.

Improving Accessibility

To reach our goals for technology, students, parents, teachers, and administrators must all have access to appropriate resources. As described in Section 4 of this plan, the curriculum articulates the manner in which increasing levels of technology as students matriculate to upper grades. Additionally, the curriculum calls for technology use to be tightly integrated into the classroom environment. Every teacher should have access to technology that ties the use of technology with instruction that supports the improved academic achievement of all students in the class.

By aligning its infrastructure requirements and educational goals, GRCDC will employ a formulaic method for determining the financial resources available for the acquisition of hardware and software. This process will involve consultation from our IT partners at Kraft Business Systems.

In addition to assigning revenue from our operational budget, GRCDC will pursue external funding sources to provide enhanced access to technology within the school.

Enhancing Robustness & Security

Due to the sensitive nature of student information and information aavailable to students via the worldwide web, the technology employed at the school must be dependable, reliable, robust and secure. Confidential student information must be protected from hackers, students must be shielded from access to inappropriate material, and systems must be protected from the potential damage that can result from computer viruses. To achieve this level of security, GRCDC relies on the expert technology resources at Kraft Business Systems to employ security best practices.

Providing Greater Flexibility

Technology is most successfully implemented in the school environment when its use is most closely aligned with the instructional and cultural environment of the school. While our IT experts can properly identify industry hardware standards, the staff and leadership at GRCDC must identify the appropriate quantity, distribution, and utilization of the technology to meet each student's needs. As a result, the technology available at GRCDC must also provide for increased flexibility within the school. Technologies such a s Wi-Fi, Bluetooth, and Tablet PC's need to be evaluated for their merit as new instructional issues are addressed.

IV. Funding and Budget

Section 13

Budgeting Philosophy

The purpose of the following sections is to outline the current budgetary model for GRCDC. As noted below, this budget is based on projected enrollment for succeeding years. Deviation from that projected enrollment or changes in state funding for charter schools would have an impact on the budget.

Lifecycle Management

GRCDC utilizes leasing as a tool for managing the cost of technology throughout its lifecycle. Most equipment and software will be acquired on a 36 or 48-month lease. By leasing, GRCDC is able to re-distribute the up-front cost of acquiring technology over the lifecycle of the equipment, allowing more technology to be integrated into the school environment. A second benefit of this approach is the opportunity to engage in planning based on the consideration of technology as an operational cost. By leasing equipment and software, GRCDC has allocated a specific dollar amount to support technology integration on an annual basis and is not reliant upon one- time grants or other windfalls to support this critical infrastructure.

Aligning the Budget

The budgeting process for technology must not only account for acquisition of hardware, software, and connectivity, but it must also pay careful attention to the Total Cost of Ownership (TCO). Historically, technology assets (such as computers) were thought of as capital expenditures. Moore's Law states that the power of the microprocessor theoretically doubles every 18 months. The reality of this law reduces the useful lifecycle of technology to approximately three years. It's critical that GRCDC continue to view technology expenditures as operational expenses. GRCDC will continue to use financing vehicles such as leasing to manage technology costs and will continue to apply standards and IT best practices to reduce the TCO.

Although charter schools are not typically funded at the same levels as their traditional public education counterparts, GRCDC is committed to providing the necessary tools are resources to its students to ensure academic success. Ultimately, the distribution of technology within the school must be fully aligned with the educational philosophy and fiscal constraints at GRCDC. External funding sources may be sought to enhance the use of technology at the school.

Managing TCO

GRCDC is committed to developing systems, procedures, and support structures to improve technology's impact while reducing the TCO. The IT support team at GRCDC will continue to stay abreast of IT best practices and will seek to apply those best practices where applicable to manage the school's infrastructure.

Annual Budgets

2010-11	
Desktop Computer lease	16,000
Phones	2,200
Software (Encyclopedia Britannica)	450
Copiers/printers (w/maintenance)	15,000
IT support (including Internet)	11,000
Server lease	4,512
Professional development	400
Projector	800
Total	**50,362**
2011-12	
34 Desktop computers (48-month lease)	10,812
Phones	2,250
Software	460
Copiers/printers	15,000
IT support	11,000
Server	4,512
Professional development	500
Projector	800
Total	**45,344**
2012-13	
Desktop computers	10,812
Phones	2,300
Software	470
Copiers/printers	15,000
IT support	11,000
Server	4,512
Professional development	600
25 laptop computers (lease)	14,300
2 Laptop chargeable storage carts (lease)	1,600
Total	**60,594**

IV. FUNDING AND BUDGET

Section 14

To reach the goals for technology within the Child Discovery Center's instructional program, students, teachers, parents, and administrators must all have access to appropriate resources. As described in this plan, the curriculum calls for increasing levels of technology use as students matriculate to the upper grades. Furthermore, the curriculum calls for technology use to be tightly integrated into the classroom environment. Every teacher should have access to technology that ties the use of technology with instructional methods that support the school's Image of the Child and the school mission.

By aligning its infrastructure requirements and educational goals, GRCDC will use a formulaic method for determining the financial resources available for acquisition of hardware and software. This process will involve consultation with the IT professionals at Kraft Business Services (our technology partners) in an effort to make wise decisions based on the identification of technology needs and available resources.

In addition to the hardware and technology services provided through the current and future contracts with Kraft Business Services, Trivalent, and other potential vendors, the Child Discovery Center will pursue additional funding for our technology needs from various grants, foundations, and targeted gift donations in order to provide all of our students with enhanced access to technology throughout the school.

V. Monitoring and Evaluation

Section 15

Process of Evaluation

Evaluation of technology integration at GRCDC is performed informally and collaboratively by the staff and principal. The principal is primarily responsible for the implementation of the instructional and staff development portions of the technology plan. The technology plan will be reviewed on an annual basis.

Measures of Success

The GRCDC technology plan must become a living document, transforming over time to meet the changing demands of the school as the environment changes. The technology plan, as mentioned in previous sections, is valid only insomuch as it aligns with the instructional needs and plans for the school. In order to ensure that alignment, the GRCDC technology plan must, in effect, serve as an extension of the GRCDC School Improvement Plan. Using this frame of reference, the evaluation of technology use must be tied into the school improvement process and overseen by the School Improvement Team. Additionally, identifying and measuring the key metrics for technology use must become part of the evaluation performed on an annual basis. Ultimately, since teachers drive the integration of technology at the classroom level, technology goals should become a part of the teacher evaluation process at GRCDC.

This evaluation process must take place annually and should be preceded by a semi- annual update to the School Improvement Team. Goals that are unmet will be subject to a review and analysis of whether the strategy was appropriate, resources and budget needs were adequate and time-lines realistic.

Technology Acceptable Use Policy (AUP) – Grand Rapids Child Discovery Center

All use of computers, technologically related data, software and other technological resources granted to the staff, parents, and student body of the Grand Rapids Child Discovery Center is intended for business and educational use. All technology will be integrated with our school's mission and moral focus in mind. Our staff will be trained in the appropriate use of technology with students.

Software used in school is becoming increasingly integrated with the Internet, and the Internet has become an integral asset to education in relationship with communication, resources, and creativity. While the goal of the school is to use the Internet to achieve our educational goals, there is always a risk of students accessing other inappropriate materials via the Internet. This *Acceptable Use Policy* is intended to address the responsibilities of the user of technology (including the Internet) with all school equipment and while on school property.

The use of technology and the computer network is a privilege, not a right, and may be revoked if abused. The user is personally responsible for his/her actions in accessing and utilizing the Grand Rapids Child Discovery Center's computer network and/or the technology resources of the school.

General Rules of the Network

1) **Privacy** -- Network storage areas may be treated like school lockers. The Grand Rapids Child Discovery Center reserves the right to monitor Internet traffic, retrieve and read any data composed, sent, received, and/or stored using our network and/or Internet connections. Network administrators may review communications to maintain system integrity and insure that students are using the system responsibly.

2) **Storage capacity** -- Users are expected to remain within the allocated disk space and delete e-mail or other material, which may take up excessive storage space.

3) **Proper usage of printing resources** -- Users are expected to use good judgment when printing on the school's printers. Paper, toner and color ink can be costly and excessive use of these resources is wasteful. Please proofread documents carefully before printing. Only print the part of the document that

one needs. In addition, users must obtain permission from their instructor before printing and/or adhere to classroom printing etiquette when applicable.

4) **Illegal copying** -- Users should never download or install any commercial software, shareware, or freeware onto network drives or disks, nor should users copy other people's work or attempt to intrude into other people's files. All copyright laws must be respected.

5) **Inappropriate materials or language** -- Profane, abusive, vulgar, pornographic and/or impolite language or materials is not permitted on the school's computer network. Accessing materials not in line with the rules of school behavior is not permitted. A good rule for students to follow is to never view, send, or access materials that one would not want one's instructors and/or parents to see. Should students encounter any inappropriate material by accident, he/she should report it to their instructor immediately.

6) **Virus Protection** – All data from outside sources will be scanned for viruses before use on any computer within the school's network.

7) **Network Filtering-** In accordance with the *Children's Internet Protection Act (CIPA)*, The Grand Rapids Child Discovery Center has placed a filter on its Internet access as one step to help protect our users from intentionally or unintentionally viewing inappropriate material.