



St. Edward School

Computer/Technology Curriculum and Delivery Methods

2011 - 2012

September 13, 2011

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Mission and Goals

The mission of the Computer and Technology Curriculum is to produce technology-literate students who are lifelong learners able to make informed decisions about the role of technology in their lives. This mission is taught in an atmosphere that is Catholic and in accordance with the Office of Catholic Schools, Diocese of San Bernardino Curriculum Guidelines.

The primary goal for Grades K– 8 students is to develop the specific technology skills required to be successful not only at higher education levels, but throughout their life.

School Wide Learning Expectations

At St. Edward, we believe that each child is a unique creation of God, blessed with a special set of talents and gifts.” All members of the school community work in partnership to guide each child in the development of his/her potential.

School Wide Student Learning Expectations are determined on a per lesson basis and identified in the teacher’s lesson plan using the following format:

St. Edward Students are:

1. CATHOLIC CHRISTIANS who:
 - a. have Christian values and become of service to others
 - b. accept the responsibility of one’s own actions
 - c. are ministers or active participants in home parish/diocese
 - d. will enroll in lay religious organizations (KC, Sodality of Mary, Catholic Daughters)
 - e. exhibit Christian social interactions with whomever they meet
 - f. provide service in the community and the world
 - g. attend liturgy and participate regularly in the sacraments
 - h. participate in service projects in the community
 - i. raise their own family Catholic and encourage others to accept their callings
 - j. participate in youth ministry or give to their parish by teaching in the CCC program
2. TOTALLY INTEGRATED PERSONS who:
 - a. exemplify a strong work ethic
 - b. are culturally sensitive and aware
 - c. respect and utilize the unique talents of all individuals
 - d. serve as positive role models
 - e. are willing to extend themselves in service to others
 - f. have an active prayerful relationship with God
 - g. demonstrate a reverence for the Gift of Life

3. LIFELONG LEARNERS who:
 - a. recognize we are all on a journey, the journey will have ups and downs and accept failures as a learning tool of future successes
 - b. use their life experiences in their continued growth to demonstrate curiosity and enthusiasm for learning
 - c. are capable of critical thinking, analyzing, considering alternatives and making good, moral choices
 - d. as communicators develop oral, written and technological communication skills

4. CREATIVE AND CRITICAL THINKERS who:
 - a. critically analyze and synthesize the spoken and written word
 - b. listen and filter out non relevant facts, strategize, and form a solution in a group situation
 - c. evaluate decisions based on moral values
 - d. are problem solvers
 - e. look at life situations from multiple angles
 - f. are able to use available resources to adapt to a changing environment
 - g. accept and recognize life's realities
 - h. face life's realities as a challenge
 - i. research and analyze information to effectively solve problems
 - j. are independent thinkers and make positive decisions
 - k. generate or promote alternative solutions to everyday challenges

Profiles and Performance Indicators

The Computer and Technology Curriculum has been developed using the National Educational Technology Standards (NETS) performance indicators and profiles published by the International Society for Technology in Education (ISTE®)¹. See Appendix A NETS Performance Indicators for additional information. These standards meet and/or exceed the Office of Catholic Schools, Diocese of San Bernardino Curriculum Guidelines for Technology (September 1996).

The performance indicators and profiles contained in NETS under “Profiles for Technology Literate Students” provide performance indicators describing the technology competence students should exhibit upon completion of the following grade ranges:

- Grades K - 2
- Grades 3 - 5
- Grades 6 - 8

These profiles are indicators of achievement at certain stages in K-8 education. They assume that technology skills are developed by coordinated activities that support

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learning throughout a student's education. These skills are to be introduced, reinforced, and finally mastered, and thus, integrated into an individual's personal learning and social framework. They represent essential, realistic, and attainable goals for lifelong learning and a productive citizenry.

Performance Indicators and Standards

The standards and performance indicators are based on input and feedback from educational technology experts as well as parents, teachers, and curriculum experts. In addition, they reflect information collected from professional literature and local, state, and national documents.

The categories are:

1. Basic operations and concepts
2. Social, ethical, and human issues
3. Technology productivity tools
4. Technology communications tools
5. Technology research tools
6. Technology problem-solving and decision-making tools

Please see Appendix for individual grade Performance Indicators.

Skills Assessment

Skills assessments for Grades K-3 are primarily done by student observation. Each student's progress is monitored closely by the teacher. Additional instruction is provided to students in any problem areas.

Students in Grades 4-8 are each given a number of tests per trimester based on the activity. For example; In Windows XP Interactive, students are tested on each section. Students must pass each sectional test before they are allowed to progress to the next section. Each test has been designed to measure the student's skill level and performance competencies.

Curriculum Scope

The following chart contains the Computer and Technology Curriculum scope and cross reference for Grades K – 8 standard classroom learning.

Grades K - 8 Scope														
Unit	K	1	2	3	4	5	6	7	8	Language Arts	Art	Math	Social Studies	Computer Skills
Computer Fundamentals														✓
Computer Navigation														✓
Computer Operating Systems														✓
Keyboarding Basics										✓				✓
Keyboarding Skills										✓				✓
Beginning Graphics											✓			✓
Using Graphics											✓			✓
Multimedia										✓	✓			✓
Word Processing Basics										✓			✓	✓
Word Processing & Software										✓			✓	✓
Spreadsheet Basics										✓		✓	✓	✓
Spreadsheet Applications										✓		✓	✓	✓
Database Basics												✓		✓
Database Concepts/Practice												✓		✓
Presentation Basics										✓	✓		✓	✓
Presentation Applications										✓	✓		✓	✓
Basic HTML														✓
Web Page Creation														✓
Web Browsing Basics										✓			✓	✓
Email Basics										✓		✓	✓	✓
Internet Search Engines										✓		✓	✓	✓
Classroom Subject Reinforcement										✓	✓	✓	✓	✓

Curriculum Sequence

The following chart contains the planned Computer and Technology Curriculum Sequence for Grades K – 8 during one school term.

	Sept		Oct		Nov		Dec		Jan	
K	Kid Pix Deluxe	Kid Pix Deluxe	Kid Pix Deluxe	Kid Pix Deluxe	Math Rabbit	Math Rabbit	Math Rabbit		Math Rabbit	Math Rabbit
1	Kid Pix Deluxe	Kid Pix Deluxe	Kid Pix Deluxe	Kid Pix Deluxe	Math Essentials	Math Essentials	Math Essentials		Math Essentials	Math Essentials
2	Kid Pix Deluxe	Kid Pix Deluxe	Kid Pix Deluxe	Kid Pix Deluxe	Math Essentials	Math Essentials	Math Essentials		ISpy	ISpy
3	Kid Pix Deluxe	Kid Pix Deluxe	Kid Pix Deluxe	Kid Pix Deluxe	Math Essentials	Math Essentials	Math Essentials		ISpy	ISpy
4	Hardware Introduction	MS Paint for G4-5	Image Animation	NP Interactive Part 1	NP Interactive Part 1	Mavis Beacon	Mavis Beacon		Mavis Beacon	Mavis Beacon
5	Hardware Introduction	MS Paint for G4-7	Image Animation	NP Interactive Part 1	NP Interactive Part 1	Mavis Beacon	Mavis Beacon		Mavis Beacon	Mavis Beacon
6	NP Interactive Part 2	Image Animation	Word Level 1	Word Level 1	Phonics Workshop	Phonics Workshop	Phonics Workshop		Wild Wort Math	Wild Wort Math
7	NP Interactive Part 2	Image Animation	Word Level 2	Word Level 2	Excel L2	Excel L2	Web Page L1		Web Page L1	Web Page L1
8	Hardware Intro & Plagiarism	Image Animation	Word Level 3	Word Level 3	Excel L3	Excel L3	Web Page L2		Web Page L2	Web Page L2
	Feb		Mar		Apr		May		Jun	
K	Clifford..Thinking Daq	Clifford..Thinking Daq	Clifford..Thinking Daq	Clifford..Thinking Daq	Clifford..Thinking Daq	Clifford..Thinking Daq	SmartStep	SmartStep	SmartStep	
1	Clifford..Thinking Daq	Clifford..Thinking Daq	Clifford..Thinking Daq	Clifford..Thinking Daq	Clifford..Thinking Daq	Clifford..Thinking Daq	JumpStart Numbers	JumpStart Numbers	JumpStart Numbers	
2	ISpy	ISpy	ISpy Treasure Hunt	ISpy Treasure Hunt	ISpy Treasure Hunt	ISpy Treasure Hunt	ISpy Fantasy	ISpy Fantasy	ISpy Fantasy	
3	ISpy Treasure Hunt	ISpy Treasure Hunt	ISpy Treasure Hunt	ISpy Treasure Hunt	ISpy Treasure Hunt	ISpy Treasure Hunt	ISpy Fantasy	ISpy Fantasy	ISpy Fantasy	
4	Mavis Beacon	Mavis Beacon	Word Level 1	Word Level 1	Word Level 1	Word Level 1	Spell Bound	Spell Bound	Spell Bound	
5	Mavis Beacon	Mavis Beacon	Word Level 1	Word Level 1	Word Level 1	Word Level 1	Spell Bound	Spell Bound	Spell Bound	
6	Excel L1	Excel L1	PowerPoint L1	PowerPoint L1	PowerPoint L1	PowerPoint L1	Clue Finders	Clue Finders	Clue Finders	
7	PowerPoint L2	PowerPoint L2	PowerPoint L2	PowerPoint L2	NP Interactive Part 2	Writing Assignment	Plagiarism/Writing Assignment	Plagiarism/Writing Assignment	Windows Movie Maker	
8	PowerPoint L3	PowerPoint L3	PowerPoint L3	PowerPoint L3	Memory Book	Memory Book	Memory Book	Memory Book	Memory Book	

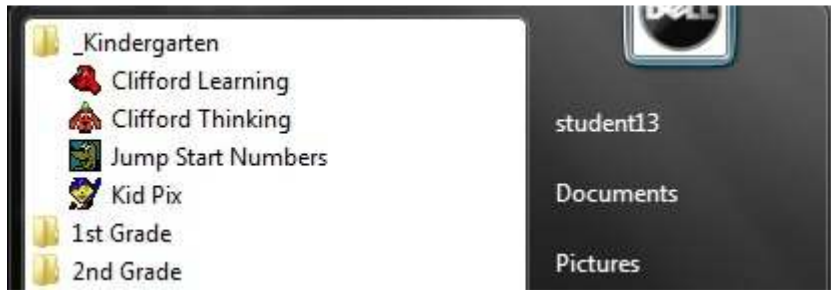
Windows Start Menu

Student access installed programs via a standardized Windows Start Menu. All computers are configured exactly the same. Lessons are organized by grade level. Also, there is no need to use physical CD disks as all programs are run in a virtual environment. Students access the program by simply clicking on the menu item. The CD image is loaded and run from the virtual drive,

The following pages contain screen images of the Computer Desktop and Windows Start Menus for Kindergarten through 8th grade.



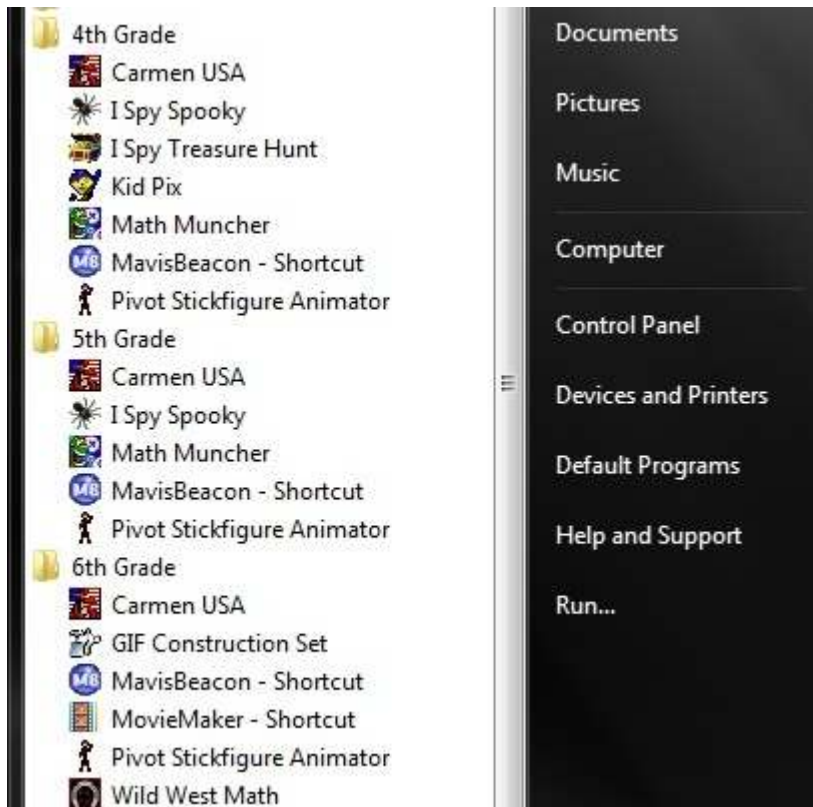
Kindergarten, 1st and 2nd Grade



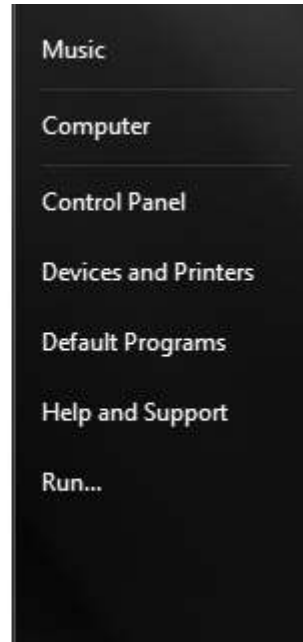
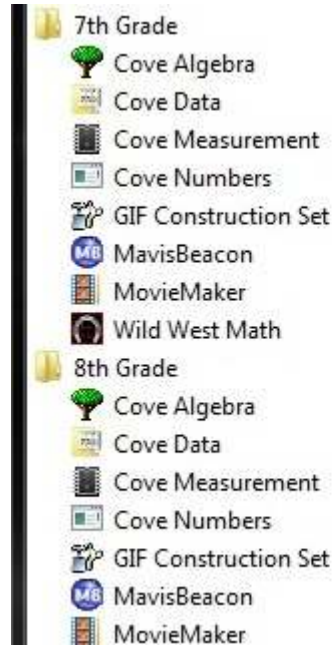
3rd Grade



4th, 5th and 6th Grade



7th and 8th Grade



Intranet Menus

St. Edward School utilizes the Computer Lab's Intranet site that includes web based lessons. Used primarily for 4th through 8th grade, the lessons include:

- Introduction to Computers
- Wireless Technology Lessons
- Graphics Lessons
- Windows Operating System Lessons
- Microsoft Word, Excel and PowerPoint Lessons
- Web Page Design Lessons
- Avoiding Plagiarism
- Video Files and Movie Making Lessons
- Virtus Lessons

The following pages contain examples of the Main Menu and Grade Level Menus:

Main Menu



Grade Level Menus

St. Edward School - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites


Address http://labserver/menu/assignments.htm



6th-8th Grade Assignment Menu

[Click Here for 4th and 5th Grade](#)

6th Grade



- Introduction to Computer Hardware
- Test Preparation - Wild West Math
- Basic Animation
- Windows XP IA (Program Only - No test)
- Word
- Paint
- Excel
- Plagiarism
- Writing Story
- PowerPoint
- Graphics Tutorial and Basic Animation
- Que Finders

[Summary Paper Instructions](#)


7th Grade

St. Edward School - Microsoft Internet Explorer

File Edit View Favorites Tools Help


Back Forward Stop Search Favorites

Address http://labserver/menu/assignments.htm



- Introduction to Computer Hardware
- Test Preparation - Quiz Study Math
- Wireless Technology Lesson and Quiz (ExamView)
- Graphics and Computer Animation
- Graphics Tutorial and Basic Animation
- Video Files and Making Movies
- Windows XP IA (Inter Active)
- Word Level 2
- Excel
- Plagiarism
- Plagiarism Quiz (Go to ExamView)
- PowerPoint
- Web Page Design

[Summary Paper Instructions](#)



8th Grade


- Introduction to Computer Hardware
- Test Preparation - Core Math Programs
- Windows XP IA (Inter Active)
- Wireless Technology Lesson and Quiz (ExamView)
- Graphics and Computer Animation
- Graphics Tutorial and Basic Animation
- Video Files and Making Movies
- Word Skills Assessment
- Word Level 3

St. Edward School - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Stop Home Search Favorites

Address <http://labserver/innerus/assignments.htm>



8th Grade

- [Introduction to Computer Hardware](#)
- [Test Preparation - Cover Math Programs](#)
- [Windows XP IA \(Inter Active\)](#)
- [Wireless Technology Lesson and Quiz \(ExamView\)](#)
- [Graphics and Computer Animation](#)
 - [Graphics Tutorial and Basic Animation](#)
 - [Video Files and Making Movies](#)
- [Word Skills Assessment](#)
- [Word Level 2](#)
- [Excel](#)
- [Region 10](#)
 - [Region 10 Quiz \(Go to ExamView\)](#)
- [PowerPoint](#)
- [Web Page Design](#)
- [PC Hardware and Windows XP Review](#)
- [Video Files and Making Movies](#)
- [MySpace Article](#)

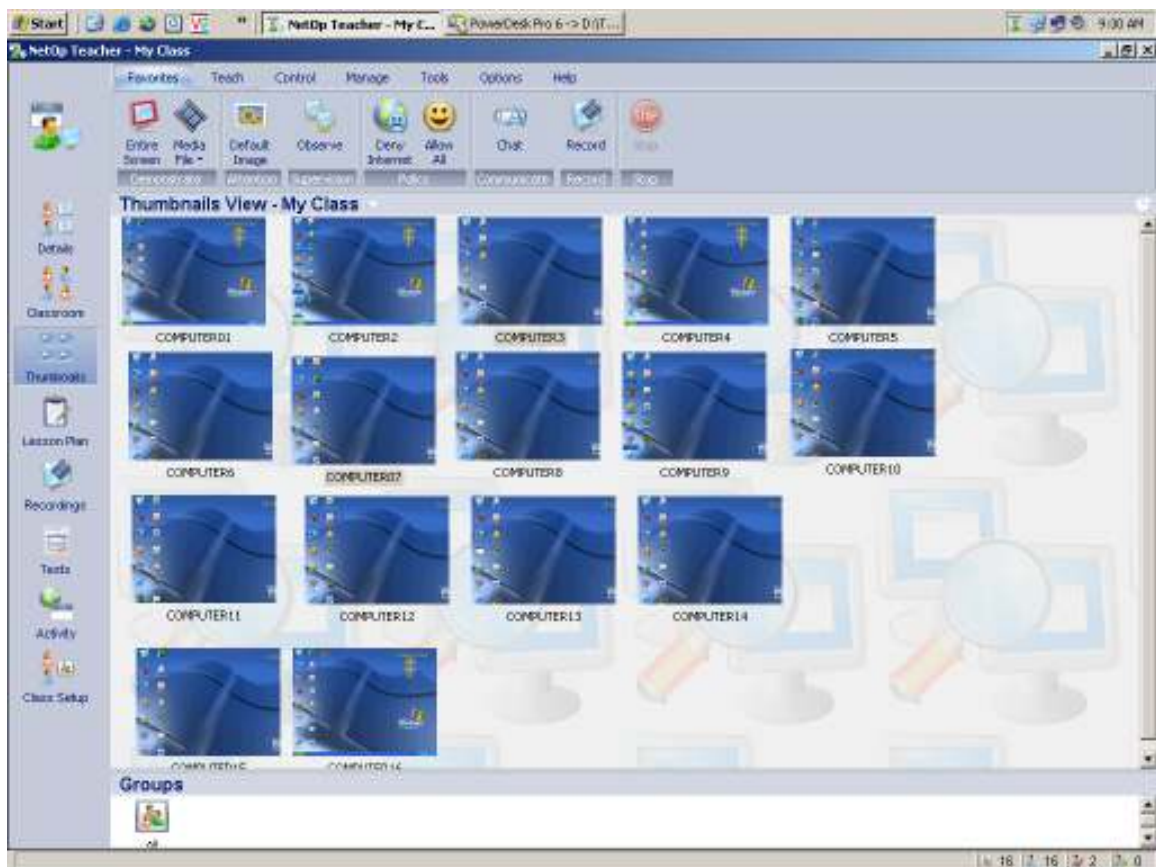
[Summary Paper Instructions](#)

NetOp School

Is a teaching application designed for educators who teach in networked classrooms or computer labs. The program provides the teacher with the following features:

- Demonstrate directly on student computer screens using advanced screen sharing technology with multimedia broadcasting that enables the sharing of both audio and video.
- Observe student computer work, monitor progress, and intervene to lend a hand.
- Policy features let teachers determine which web sites and applications students can access at any given time. The programs design ensures that students can't circumvent teacher controls.
- Pass the chalk, interactive chat, many-to-many audio support, and workgroup features provide a platform for collaborative learning.
- Integrated evaluation features let the teacher create and administer tests that grade students in real-time.

The following pages contain screen images of the NetOp program:





Software Summary

The following pages contain summary information regarding the software programs used in the Computer and Technology Curriculum for each grade level.

Kindergarten – Grade 3

Grade	Program	Developer	Summary
K	Math Rabbit	The Learning Company	Program to support math learning consisting of games in which the student must solve math problems to progress through the various levels.
K	SmartSteps	Smart Steps Company	Smart Steps helps kindergartners build a solid foundation - in reading, math, science and creativity.
1	Jump Start Numbers	Jump Start Products	Students will learn about addition, subtraction, sequences, counting and more, while they play arcade-style games.
K - 2	Clifford...Thinking Dog	Scholastic Software	Program to support reasoning and problem solving learning. The student helps "Clifford" and friends to plan a birthday party and must resolve problems to advance to each level.
K - 3	Kid Pix Deluxe 3	Borderbund	Kid Pix Deluxe 3 contains a comprehensive set of computer-based art tools and projects.
1 - 3	Math Essentials	The Learning Company	Program to support math learning consisting of games in which the student must solve math problems to progress through the various levels.
2 - 3	I Spy	Scholastic Software	Program to support thinking skills learning. The student can play up to 8 different games, each requiring problem solving.
2 - 3	I Spy Treasure Hunt	Scholastic Software	Second phase of the "I Spy" series of learning programs.
2 - 3	I Spy Fantasy	Scholastic Software	Third phase of the "I Spy" series of learning programs.

Grades 4 - 5

Grade	Program	Developer	Summary
4	Introduction to Computers Level 1	Hahn	Web based interactive tutorial and teacher guidance introducing the major parts of a computer.
5	Introduction to Computers Level 1A	Hahn	Web based interactive tutorial and teacher guidance introducing the major parts of a computer and their functions.
4-5	Microsoft Encarta	Microsoft	Electronic encyclopedia used for research and writing assignments.
4-5	Mavis Beacon Typing v. 16	The Learning Company	Typing program that teaches basic typing skills using games and exercises.
4-5	Microsoft Paint	Hahn	Web based interactive tutorial and teacher guidance on the creation of basic to intermediate graphic files using Microsoft Paint.
4-5	Image Animation	Hahn	Web based interactive tutorial and teacher guidance introducing graphic files and the use of simple animations.
4-5	Microsoft Word Level 1	Hahn ²	Web based interactive tutorial and teacher guidance on the basics of Microsoft Word.
4-5	Microsoft Excel Level 1	Hahn ²	Introduction to Level 1 Database Concepts using Microsoft Excel.
4-5	Introduction to Windows XP Level 1	Microsoft	Windows XP Interactive Tutorial Part 1
4-5	Microsoft PowerPoint Level 1	Hahn ²	Introduction to presentation concepts
4-5	Spell Bound	The Learning Company	Four interactive activities help students master spelling, using word recall, recognition, and differentiation techniques.

² Compiled, edited and reformatted from Microsoft Office 2003 Training[©]

Grade 6

Grade	Program	Developer	Summary
6	Introduction to Computers L2	Hahn	Web based interactive tutorial and teacher guidance introducing the major parts of a computer and their functions.
6	Image Animation Level 2	Hahn	Web based interactive tutorial and teacher guidance introducing graphic files and the use of simple animations.
6	Microsoft Encarta	Microsoft	Electronic encyclopedia used for research and writing assignments.
6	Writing Assignments	Hahn	Students will be given 1 research writing assignment per term that will emphasize source citation using a revised MLA-type template.
6	Microsoft Word Level 1	Hahn ³	Web based interactive tutorial and teacher guidance on the basics of Microsoft Word. Repeat/Reinforcement of concepts learned in G 4 – 5.
6	Introduction to Windows XP Level 1	Microsoft	Windows XP Interactive Tutorial Part 1
6	Microsoft Excel Level 1	Hahn ³	Introduction to spreadsheet concepts.
6	Microsoft PowerPoint Level 1	Hahn ³	Basic to intermediate presentation concepts
6	WildWest Math	?	Adding, subtraction and division games in a western (rodeo) setting.
6	Cluefinders	The Learning Company	Students develop skills in reading comprehensive, reading for meaning, finding the main idea, reading for detail, using context clues, analyzing information, making inferences, drawing conclusions and ignoring extraneous information.

³ Compiled, edited and reformatted from Microsoft Office 2003 Training[©]

Grade 7

Grade	Program	Developer	Summary
7	Cove_Numbers Cove_Reasoning Cove_Algebra	Descartes	Students explore mathematical concepts to extend their knowledge, develop problem solving skills, learn to reason mathematically, and apply an understanding of mathematics to real-world problems
7	Quick Study Math	SelectSoft Publishing	Features over 25 lessons and 200+ interactive quiz questions Multimedia learning system for the learning and review of math concepts. Great for new learners and those just looking to brush up on basic math skills Designed to boost grades and test scores.
7	Introduction to Windows XP Level 2	Microsoft	Windows XP Interactive Tutorial Part 2
7	Microsoft Encarta	Microsoft	Electronic encyclopedia used for research and writing assignments.
7	Introduction to Computer Hardware	Hahn	Web based interactive tutorial and teacher guidance introducing the major parts of a computer and their functions.
7	Microsoft Encarta	Microsoft	Electronic encyclopedia used for research and writing assignments.
7	Writing Assignments	Hahn	Students will be given 1 research writing assignment per term that will emphasize source citation using a revised MLA-type template.
7	Image Animation Level 2	Hahn	Web based interactive tutorial and teacher guidance introducing graphic files and the use of more complex animations.
7	Microsoft Word Level 2	Hahn ⁴	Web based interactive tutorial and teacher guidance on the use of Microsoft Word.
7	Web Page Level 1	Hahn	Using Microsoft Word, students are introduced to the concepts of HTML by creating their own web pages.
7	Microsoft Excel Level 2	Hahn ⁴	Introduction to spreadsheet concepts.

⁴ Compiled, edited and reformatted from Microsoft Office 2003 Training[©]

7	Web Page Level 1	Hahn	Using Microsoft Word, students continue learning web page concepts by creating a "class" web site.
7	Microsoft PowerPoint Level 2	Hahn ⁴	Basic to intermediate presentation concepts

Grade 8

Grade	Program	Developer	Summary
8	Introduction to Windows XP Level 2	Microsoft	Windows XP Interactive Tutorial Part 2
8	Introduction to Computer Hardware	Hahn	Web based interactive tutorial and teacher guidance introducing the major parts of a computer and their functions.
8	Microsoft Encarta	Microsoft	Electronic encyclopedia used for research and writing assignments.
8	Writing Assignments	Hahn	Students will be given 1 research writing assignment per term that will emphasize source citation using a revised MLA-type template.
8	Image Animation L3	Hahn	Web based interactive tutorial and teacher guidance introducing graphic files and the use of simple animations.
8	Microsoft Word Level 3	Hahn	Web based interactive tutorial and teacher guidance on the use of Microsoft Word.
8	Microsoft Excel Level 3	Hahn	Introduction to advanced spreadsheet concepts.
8	Web Page Level 2	Hahn	Using Microsoft Word, students continue learning web page concepts by creating a "class" web site.
8	Microsoft PowerPoint Level 3	Hahn	Basic to intermediate presentation concepts
8	Microsoft Publisher	Hahn	Basic concepts of Microsoft Publisher
8	Memory Book		Students will be required to complete a project that will require the use of skills learned during this school year to create and publish the traditional Memory Book.

Appendix A NETS Performance Indicators⁵

Numbers in parentheses following each performance indicator refer to the standards category to which the performance is linked

The categories are:

1. Basic operations and concepts
2. Social, ethical, and human issues
3. Technology productivity tools
4. Technology communications tools
5. Technology research tools
6. Technology problem-solving and decision-making tools

Grades K-3

All students should have opportunities to demonstrate the following performances.

Prior to completion of Grade 3, students will:

1. Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes, and other technologies. (1)
2. Use specific technology resources and educational programs to reinforce classroom learning activities. (1, 3)
3. Communicate about technology using developmentally appropriate and accurate terminology. (1)
4. Use developmentally appropriate multimedia resources (e.g., interactive books, educational software, elementary multimedia encyclopedias) to support learning. (1)
5. Work cooperatively and collaboratively with peers, family members, and others when using technology in the classroom. (2)
6. Demonstrate positive social and ethical behaviors when using technology. (2)
7. Practice responsible use of technology systems and software. (2)
8. Use technology resources (e.g., puzzles, logical thinking programs, writing tools, and digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories. (3, 4, 5, 6)

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Grades 4-5

All students should have opportunities to demonstrate the following performances.

Prior to completion of Grades 4 and 5, students will be tested to measure their skill level and performance competencies.

1. Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively. (1)
2. Use specific technology resources and educational programs to reinforce classroom learning activities. (1, 3)
3. Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide. (1, 2)
4. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use. (2)
5. Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum. (3)
6. Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, and scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom. (3, 4)
7. Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning, and pursue personal interests. (4)
8. Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom. (4, 5)
9. Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning, and extended learning activities. (5, 6)
10. Determine which technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. (5, 6)

11. Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources. (6)

Grades 6-8

All students should have opportunities to demonstrate the following performances.

Prior to completion of Grades 6, 7 and 8, students will be tested to measure their skill level and performance competencies.

1. Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use. (1)
2. Use specific technology resources and educational programs to reinforce classroom learning activities. (1, 3)
3. Demonstrate knowledge of current changes in information technologies and the effect those changes have on the workplace and society. (2)
4. Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse. (2)
5. Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research. (3, 5)
6. Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum. (3, 6)
7. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom. (4, 5, 6)
8. Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom. (4, 5)
9. Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems. (5, 6)
10. Demonstrate an understanding of concepts underlying hardware, software, and connectivity and of practical applications to learning and problem solving. (1, 6)

11. Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems. (2, 5, 6)