

Public and Catholic District School Board Writing Partnerships

Technological Education

Course Profile **Communications Technology**

Grade 12

University/College Preparation

TGJ4M

• *for teachers by teachers*

This sample course of study was prepared for teachers to use in meeting local classroom needs, as appropriate. This is not a mandated approach to the teaching of the course. It may be used in its entirety, in part, or adapted.

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Course Overview

Communications Technology, TGJ4M, Grade 12, University/College Preparation

Policy Document: *The Ontario Curriculum, Grades 11 and 12, Technological Education, 2000.*

Prerequisite: Communications Technology, Grade 11, University/College Preparation

Course Description

This course examines communications systems and design and production processes in the areas of electronic, live, recorded and graphic communications. Students create, manage and distribute complex electronic, graphic, recorded or audio-visual projects independently and in project teams. Students also study industry standards and regulations, and health and safety issues, as well as explore careers, the importance of lifelong learning and the impact of communications technology on society and the environment.

How This Course Supports the Ontario Catholic School Graduate Expectations

The role of Technological Education in the Catholic faith community is to enable students to develop and utilize their gifts and talents while creating products that benefit others in a way that models gospel values. The focus of the curriculum is to enable students to become critical and innovative problem solvers who question the use of resources and understand the implications of technological innovations. An emphasis on process as well as results ensures that students create products and provide services that recognize our God-given responsibility to respect the dignity and value of the individual and the community.

Course Notes

This course profile provides a framework for extending and deepening the skills and knowledge students have developed in Grade 11 Communications Technology. Students are required to design and create products using audio/visual, graphic and interactive technologies. There are four units of study emphasizing the theory and applications of live, recorded, electronic and graphic communication processes. Units are organized to provide practical contexts for the application of advanced skills and knowledge. Activities within each unit provide opportunities for students to acquire and demonstrate understanding of the practices and underlying principles of complex technological processes. Students are expected to build upon their existing skills and knowledge, especially with regard to their ability to design, plan and carry out self-initiated projects.

In this Course Profile, each unit of study focuses predominantly on a curricular strand. Unit 1 is concerned with the impact and consequences of the use and development of communication technologies. Units 2 and 4 focus on the application of skills and processes. Unit 3 deals with the technological design process and knowledge of graphic communication processes. This method of organization stems from a consideration of how to generate meaningful learning activities from logical clusters of expectations within relevant projects that are largely student-initiated. The course consists of coherent units of study based on projects and applications that can be realistically undertaken in a high school. Expectations have been grouped and sequenced to promote efficient and practical assessment of significant learning activities. In Unit 1, for example, expectations relating to safety, impacts and education/training have been gathered into a coherent exploration of the social and economic context of the technologies and practices they will use in the course.

Fostering Inclusiveness

This profile describes activities in which students generate and distribute images and text. It is understood that student work must contain positive images of people regardless of age, physical appearance, socio-economic status, disability, race or gender. Similarly, derogatory stereotypes, acts of violence, sexually-oriented themes, or use of profanity is unacceptable.

Learning Skills

In addition to the specific skills that are developed throughout the course, students learn to:

- solve problems through careful analysis, cooperation and communication;
- develop individual and group skills through student-centred activities;
- develop time-management skills to design and follow organizational plans to complete a range of tasks;
- show commitment to a task by maintaining a level of effort required to complete a product;
- develop the ability to self-monitor progress using record-keeping and tracking procedures such as logs, journals and project portfolios.

Safe and Appropriate Use of Equipment and Facilities

Teachers address safety/censorship on the Internet by implementing School Board Policies relating to appropriate student use and access to Internet services.

Equipment Requirements

The units in this course profile rely upon the availability of a wide range of computer and audio/visual equipment. Teachers may check the planning notes for each activity for alternative methods of instruction in the absence of the equipment described. The chart below provides an overview of the equipment, resources and facilities required in each unit.

Equipment and Facilities	Unit 1	Unit 2	Unit 3	Unit 4
Computers and Peripherals				
PCs for internet access, word processing, and database software	✓	✓	✓	✓
Multimedia workstations				✓
PC-based digital editing workstations		✓		✓
Desktop publishing workstations			✓	
Desktop colour scanner			✓	✓
Laser printer	✓	✓	✓	✓
Colour printer	✓	✓	✓	✓
Lighting				
Instruments		✓		
Control System		✓		
Audio				
Microphones – various types if available		✓		✓
Microphone Stands and Booms		✓		
Audio Amplifier, Processor and Effects Equipment		✓		
Audio Mixer		✓		
Audio Tape Recorders		✓		
Audio software for editing		✓		✓

Equipment and Facilities	Unit 1	Unit 2	Unit 3	Unit 4
Video and Imaging				
Television Studio Cameras or Camcorders		✓		✓
Tripods		✓		
Dolly(s)		✓		
Video Cabling for power and signal transmission		✓		
Voice Communications (intercom) Equipment		✓		
Video Monitors		✓		✓
Video Switching Equipment		✓		
Recording/Playback VCRs		✓		✓
Analogue Editing Controllers		✓		
Electronic Titling Equipment or Computer capability		✓		
Video Capture Capability (VHS and/or DV)		✓		✓
CD Writer		✓		✓
Digital camera		✓		✓
Publication				
Laser printer capable of printing tabloid size paper			✓	
Colour printer capable of printing tabloid size paper			✓	
Software				
Word Processing	✓	✓	✓	✓
Database		✓	✓	✓
Page Layout			✓	
Graphics (vector-based)	✓	✓	✓	✓
Image Editing	✓	✓	✓	✓
Desktop Video		✓		✓
Audio Mixing		✓		✓
HTML editing				✓
Multimedia authoring				✓

Units: Titles and Times

Unit 1	The Social and Economic Context of Communications Technology	18 hours
* Unit 2	Audio-Visual Production: Music Video	24 hours
* Unit 3	Illustrated Print Publication	25 hours
Unit 4	Multimedia Production	43 hours

* These units are fully developed in this Course Profile.

Unit Overviews

Unit 1: The Social and Economic Context of Communications Technology

Time: 18 hours

Unit Description

This unit explores social and economic implications of the projects and activities completed in the course. Beginning with an examination of safe work practices and relevant workplace legislation, students design and produce a document describing safe and appropriate use of the communications technology equipment and facilities. This document, along with demonstrations of the practices described, serves as the students' passport to the use of equipment and facilities in later units and activities. Students move on to case studies of local and global applications of communications technologies in order to discover and analyse the range of impacts (i.e., health, environmental, social and economic) inherent in communication practices. This is followed by a study of the industry standards and conventions related to the communication products created in subsequent units. Students complete the unit by investigating the training and career opportunities aligned with skills, interests and lifestyle preferences.

Unit Overview Chart

Activity	Learning Expectations	Assessment Categories	Focus
1.1 Overview of Safety Issues and Legislation	ICV.03, IC2.04, IC2.05 CGE.4a, 4g, 7d	Knowledge/ Understanding	Review of relevant aspects of OHS and WHMIS.
1.2 Developing a Safety Passport	SPV.05, ICV.02, IC2.02, IC2.03 CGE.1d, 3b, 3c, 4a, 4g, 7d	Knowledge/ Understanding Thinking/Inquiry Communication Application	Students collaborate to design, produce, and use a passport of safe and appropriate work practices for the school communications facilities.
1.3 The Big Picture: Impacts and Consequences of Communications Technologies	ICV.01, IC1.01, IC1.02, IC1.03 CGE.1d, 2b, 2e, 3b, 3c, 3f, 4a, 4g, 5b, 7d, 7i	Knowledge/ Understanding Thinking/Inquiry	Students explore the social, environmental, and economic effects of current practices and technologies.
1.4 The Common Language: Formats, Standards, and Conventions	TFV.04, TF2.03, TF3.01, TF3.02 CGE.2a, 2b, 2c, 2d; 5b, 5d	Communication Application	Students present research findings into standard equipment, formats, and professional practices in selected industries.
1.5 Open Doors: Careers and Post-Secondary Training in Communications Technology	ICV.04, IC3.01, IC3.02, IC3.03, IC3.05 CGE.2b, 2e, 3c, 3d, 4g, 5b	Knowledge/ Understanding Thinking/Inquiry Communication Application	Students explore educational and professional opportunities in the context of their interests and skills.

Unit 2: Audio-Visual Production: Music Video

Time: 24 hours

Unit Description

In this unit students utilize the skills and concepts of audio/visual production to produce a music video in analogue or digital formats. Including and expanding upon design concepts and production skills developed in the Grade 11 Communications Technology Curriculum, students produce a promotional video for a band (either real or imaginary), enabling them to also develop and refine design and problem-solving skills associated with media production. Students employ a variety of skills, including designing and implementing a lighting plot and setting up audio recording/mixing equipment. In addition, students create a shooting script, plan camera locations and movements, videotape and edit a live performance. Throughout the unit cooperative work strategies and video content reflect the moral and ethical philosophy of the gospel values. This unit prepares students for post-secondary education leading to careers in audio/visual production.

Unit Overview Chart

Activity	Learning Expectations	Assessment Categories	Focus of Activity
2.1 Setting Up of Lighting Equipment for the Recording of a Live Performance	TFV.03, TF2.01, SPV.05, SP2.01, SP4.03, ICV.02, IC2.01 CGE.2a, 2b, 2c, 3b, 3c, 3d, 4b, 4f, 5a, 5e, 5f, 5g, 7b, 7j	Knowledge/ Understanding Application	Prepare lighting equipment for live performance and recording.
2.2 Setting Up of Audio Equipment for the Recording of a Live Performance	TFV.05, TF2.05, SPV.03, SP2.03, SP2.05, SP2.06, IC2.01 CGE.2a, 2b, 2c, 3b, 3c, 3d, 4b, 4f, 5a, 5e, 5f, 5g, 7b, 7j	Knowledge/ Understanding Application	Set audio equipment in place for live performance and recording.
2.3 Setting Up of Video Equipment for the Recording of a Live Performance	SPV.03, SPV.05, SP2.02, SP2.05, SP4.02, IC2.01 CGE.2a, 2b, 2c, 3b, 3c, 3d, 4b, 4f, 5a, 5e, 5f, 5g, 7b, 7j	Knowledge/ Understanding Application	Prepare video equipment for live performance and recording.
2.4 Production For the Recording of a Live Performance	SPV.03, SPV.05, SP1.01, SP2.01, SP2.02, SP2.04, SP2.05, SP2.06, SP2.07, SP4.02, IC2.01 CGE.1d, 2a, 2b, 2c, 2d, 3b, 3c, 3d, 3e, 4b, 4d, 4e, 4f, 5a, 5b, 5e, 5f, 5g, 7a, 7b, 7j	Application Communication	Audio/Video recording and titling of live performance.
2.5 Analogue or Digital Editing	SP2.01, SP2.02, SP2.03, SP2.04, SP3.02, SP4.02, SPV.02 CGE.1d, 2a, 2b, 2c, 2d, 2e, 3b, 3c, 3d, 3e, 4b, 4d, 4e, 4f, 5a, 5b, 5e, 5f, 5g, 7a, 7b, 7j	Application Communication	Edit source material for final videotape.

Unit 3: Illustrated Print Publication

Time: 25 hours

Unit Description

Students apply their understanding of desktop publishing to produce an original illustrated book for print production. This unit expands upon the graphic communications skills developed in the Grade 11 Communications Technology course. To prepare information for publishing, students select a theme that reflects a personal interest. Students use the format of a coffee-table book and include text and original photographic images. They select a book style to best deliver their theme, generate a variety of design ideas to lay out their theme, create photographic images (35 mm and/or digital), compose text, generate a folded mock-up of the imposition of their book, and produce a prototype for print production. Using their mock-up as a guide, students determine page layout, apply typographical principles, and generate photographic images. Students also create a full-colour cover that enhances the presentation quality of the book. Students select and use a variety of computer hardware and software to create the publication. This unit prepares students for post secondary study in graphic design and communications.

Unit Overview Chart

Activity	Learning Expectations	Assessment Categories	Focus of Activity
3.1 Planning Principles and the Techniques of Multi-Page Publications	TFV.01, SPV.01, SPV.04, SPV.05 TF1.02, TF3.02, SP1.02, SP1.03, SP3.03	Knowledge/ Understanding Communication Thinking/Inquiry	Apply the design process to plan personal interest book. Create a mock-up for imposition of the multiple-pages that shows the placement of text and photographs. Write a proposal for publishing approval. Build a page template using desktop-publishing software.
3.2 Generating, Manipulating, and Enhancing Photographic Images	SPV.01, SPV.04, SPV.05 SP1.02, SP1.03, SP3.03	Knowledge/ Understanding Application	Compose and capture photographic images to reflect personal book theme. Convert photographic images to digital format. Apply photo-editing techniques to enhance photographic images using vector-based software program. Crop photographic images to fit page parameters.
3.3 Page Input, Editing, and Output (Desktop Publishing)	SPV.03, SP1.02, SP1.03, SP3.03	Knowledge/ Understanding Application	Select appropriate type style and size. Integrate text and photographs on the pages according to the mock-up layout. Perform text editing. Add page numbers. Output pages.
3.4 Cover Production and Book Binding Techniques	ICV.02, SP2.03, SP2.04, SP3.01, IC2.01, IC2.05	Knowledge/ Understanding Thinking/Inquiry Communication Application	Design a full colour cover that enhances the presentation. Bind pages to the cover.

Unit 4: Multimedia Production

Time: 43 hours

Unit Description

In this unit, students explore methods of creating and delivering multimedia content for Internet and CD-Rom delivery. Students study factors such as bandwidth and data rate in order to prepare multimedia and interactive content for different methods of distribution. Students first produce a detailed analysis of a variety of transmission channels and their uses in local and global file sharing. Then, in an independent project exploring the limitations and potential of the World Wide Web for delivery of multimedia, students produce a website with media content available for varying connection speeds (e.g., modem and broadband). At this point students have the option of linking their website project to previous activities (e.g., a website for their music video or a multimedia version of their illustrated book) or of choosing a new topic and producing completely new content. The culminating activity of the unit serves as part of the final evaluation for the course. This activity requires students to author an interactive interface for a digital portfolio documenting their projects and skills. In their portfolio students describe the skills they have acquired, analyse their skills in the context of careers in communications technology, and demonstrate technical proficiency by producing content optimized for CD-ROM delivery.

Unit Overview Chart

Activity	Learning Expectations	Assessment Categories	Focus
4.1 Delivering the Goods: Methods of Distributing Rich Media Content	TF2.02, TF2.05, SP2.05 CGE 2b, 2c, 2e, 3b, 3c, 3e, 4a, 4b, 4e, 4f, 5a, 5g, 7b, 7j	Knowledge/ Understanding Communication Application	Technologies used in the distribution of multimedia and interactive content.
4.2 Multimedia on the Web	TFV.01, TFV.03, TF1.01, SPV.04, SP1.02, SP2.03, SP3.02 CGE 2a, 2b, 2c, 2e, 3b, 3c, 3e, 4b, 4f, 5a, 5e, 5g, 7b, 7j	Knowledge/ Understanding Thinking/Inquiry Communication Application	Authoring content for a range of bandwidths.
4.3 Culminating Task: Authoring a Portfolio on CD-ROM	SPV.02, SP3.01, SP2.04, SP4.02, IC3.04 CGE 2b, 2c, 2e, 3b, 3c, 3e, 4a, 4b, 4e, 4f, 5a, 5g, 7b, 7j	Knowledge/ Understanding Thinking/Inquiry Communication Application	Describing, analysing, and demonstrating the skills and knowledge acquired in the course.

Teaching/Learning Strategies

Students use and explore communications technologies by means of the following learning strategies:

Application – creation of technological products for identified purposes;

Brainstorming – group generation of initial ideas expressed without criticism or analysis;

Collaborative/Cooperative Learning – small group learning and decision making providing high levels of student engagement and interdependence;

Computer-assisted Learning – learning of new material through online methods of instruction;

Conferencing/Discussion – student-to-student discussion and teacher-to-student conferencing to encourage confidence and motivation to success in all learners;

Design Process – the stages of development of a product or process, including developing a focus, developing a framework, choosing the best solution, implementing a plan and reflecting on the process and the product;

Independent Study – exploration and research of a topic interesting to students.

Problem Solving – identifying and working through a problem;

Report/Presentation – oral, visual, written and electronic presentation of researched topic to class;

Socratic Lesson – oral presentation of information by the teacher;

Teacher-directed Class Discussion – students actively participate by taking turns discussing current issues.

Teachers may seek the collaboration of other teachers in interdisciplinary and cross-curricular projects (for example in the production of multimedia or interactive presentations). Teachers should seek the collaboration and participation of Guidance personnel during Unit 1.

Assessment & Evaluation of Student Achievement

The assessment techniques described below focus on both the process and product of student learning.

Assessment/Evaluation Techniques

Paper-and-Pencil

- Quizzes and tests
- Worksheets
- Project proposals
- Final written evaluation

Performance Assessment

- Skills demonstrations
- Presentation
- Finished product
- Portfolio

Personal Communication

- Conferencing
- Student-teacher
- Teacher-group
- Daily activity log or journal
- Critique peer conferencing

Assessment Tools

- Checklists
- Marking schemes
- Rubrics
- Anecdotal comments with suggestions for improvement
- Rating scales

Purposes of Assessment

- Diagnostic – occurs at the beginning of a term, unit of study, or whenever information about prior learning is useful.
- Formative – during the learning process, provides ongoing feedback to the teacher about the quality of learning and the effectiveness of instruction.
- Summative – is usually carried out at the end of a learning process (may include feedback and/or judgment).

Evaluation of Student Achievement

Students are formally evaluated on their demonstration of curriculum expectations using the categories of skills and knowledge set out in the Achievement Chart. Checklists are used to provide information about the operational steps of the production process (such as the completion of planning documents) and an ongoing means of monitoring the level of achievement attained. Rating scales and rubrics describe the look and feel of completed products. All evaluation tools should be available to students at the beginning of an activity to provide information about task requirements and the features of exemplars.

Teacher/student discussions during pre-production, production and post-production can clarify standards and expectations as well as provide a way of monitoring progress. The inclusion of informal opportunities for peer and self-assessment can promote in students a sense of responsibility, accountability, and growth. Written tests and question sheets are effective in the evaluation of required knowledge. The vocabulary used in test questions should reflect that used in the learning situation. The option for oral testing and student demonstrations of acquired skills should also be used. Although students are encouraged to write answers in proper sentence form, diagrammatic answers are effective assessment instruments in technological education. In their planning and implementation of projects, work assignments, and problem-solving activities, students demonstrate their ability to combine skills and knowledge successfully in practical tasks. Seventy per cent of the grade will be based on assessments and evaluations conducted throughout the course. Thirty per cent of the grade will be based on a final evaluation in the form of an examination, performance, essay, and/or other methods of evaluation.

Accommodations

The teacher consults individual student IEPs for specific direction on accommodations for individuals. The teacher uses a range of teaching/learning strategies to accommodate the needs of all students. Exceptional students benefit from accommodations in the overall activity criteria, as well as teacher and peer assistance when appropriate. Written tests are designed to suit students' reading and writing levels. The teacher adapts teaching strategies to accommodate learning styles. These may include:

- verbal instead of written tests;
- demonstrations of acquired skills instead of written evaluations;
- providing rewrite opportunities when appropriate;
- conferencing/discussion – student-to-student discussion and teacher-to-student conferencing to encourage confidence and motivation;
- small-group learning;
- flexible timelines;
- adapting handouts;
- peer tutoring;
- enrichment and extension activities.

Resources

Units in this Course Profile make reference to the use of specific texts, magazines, films and websites. The teacher must consult board policies regarding the use of any copyrighted materials. Before reproducing materials for student use from printed publications, the teacher must ensure that the school board has a Cancopy licence and that this licence covers the resources to be used. Before screening videos/films with the students, the teacher must ensure that the board/school has obtained the appropriate public performance videocassette licence from an authorized distributor, e.g., Audio Cine Films Inc.

Note: much of the material on the Internet is protected by copyright. The person or organization that created the work usually owns the copyright. Reproduction of any work or substantial part of any work on the Internet is not allowed without the permission of the owner.

Each activity in this profile lists specific resources that may include textbooks, training manuals, magazines, websites, multimedia and presentation packages, videos, online tutorials and career/industry sources. Below is a comprehensive list of resources referenced in the activity descriptions for each course unit.

Books

- Adobe Creative Team. *Official Adobe Print Publishing Guide, 2nd Edition*. USA: Adobe Press, 2002. ISBN: 0201700131
- Alkin, Glyn. *Sound Recording and Reproduction*. London: Focal Press, 1994.
- Andersen, Neil and John J. Punjente, SJ. *Scanning Television: Videos for Media Literacy in Class*. Toronto: Harcourt Brace & Company, 1997. ISBN 0774701730
- Barden, Robert and Michael Hacker. *Communication Technology*. Canada: Nelson Canada, 1990. ISBN 0-8273-3225-4
- Bermingham, Alan [et al.]. *The Video Studio*. London: Focal Press, 1994.
- Brainerd, T. *Graphic Design - Letterhead and Logo Design*. USA: Rockport Publisher, 1998. ISBN 0-15649-6618-6
- Broekhuizen, Richard. *Graphic Communications*. USA: Glencoe Macmillan/McGraw-Hill, 1995. ISBN 0-02-676305-2
- Cloghessy, Florence, John Ritz, and Richard Seymour. *Exploring Communication*. USA: Goodheart-Wilcox Co., Inc., 2000. Text ISBN 1-56637-678-5, Student Activity Manual ISBN 1-56637-679-3, Instructor's Manual ISBN 1-56637-680-7
- Heller, S. and T. Fernandes. *Becoming a Graphic Designer: A Guide to Careers in Design*. USA: Wiley, John and Sons, 1999. ISBN 04712990
- Hitchcock, Peter. *Videography: The Guide to Making Videos*. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. ISBN 0-9696261-0-X
- Hone, Rick and Liz Flynn. *Video in Focus: A Guide to Viewing and Producing Video*. Toronto: Globe/Modern Curriculum Press, 1992. ISBN 0-888996-344-4
- Hone, Rick and Liz Flynn. *Video in Focus: A Guide to Viewing and Producing Video, Teacher's Guide*. Toronto: Globe/Modern Curriculum Press, 1992. ISBN 0-888996-281-2
- Jensen, C. and F. Mason. *Fundamentals of Engineering Graphics, SI Metric*. Canada: McGraw Hill Ryerson Ltd., 1988. ISBN 0-07-549209-1
- Johnson, Charles. *Communication Systems*. USA: Goodheart-Wilcox Co., Inc., 1992. ISBN 0-87006-961-6
- Karsnitz, John. *Graphic Arts Technology*. USA: Delmar Publishers Inc., 1984. ISBN 0-8273-1828-6
- Katz, Steven. *Film Directing – Shot by Shot*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-10-8
- Kyker, Keith and Christopher Curchy. *Television Production: A Classroom Approach*. USA: Libraries Unlimited, 1993. ISBN 1-56308-101-6
- Millerson, Gerald. *Video Camera Techniques*. London: Focal Press, 1994
- Purst, Zeke. *Graphic Communication, The Printed Image*. USA: Goodheart-Wilcox Co., Inc., 1989. ISBN 0-87006-961-6
- Sanders, M. *Communication Technology - Today and Tomorrow*. USA: Glencoe/McGraw-Hill, 1984. ISBN 0-02-677110-1
- Stanaway, Jim. *A Beginner's Guide to Video Communications*. Chicago: NTC Publishing, 1997. ISBN 0-8442-5998-5
- Thode, T. *Technology*. USA: Delmar Publishers Inc., 1994. ISBN 0-8273-5098-8

Utz, Peter. *Recording Great Audio*. USA: Quantum Publishing, Inc. 1989. ISBN 0-930633-15-6

Utz, Peter. *Today's Video, Equipment, Setup and Production*. USA: Prentice-Hall, 1992. ISBN 0-13925033-6

Vineyard, Jeremy. *Setting Up Your Shots*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-74-4

Ward, Peter. *Basic Betacam Camera work*. London: Focal Press, 1994.

Wiese, Michael. *The Independent Film & Videomaker's Guide*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-57-4

Wurtzel, Alan. *Television Production*. Toronto: McGraw-Hill, 1989.

Zettl, Herbert. *Video Basics*. Toronto: Nelson Canada, 1995.

Journals/Magazines

Computer Arts. London:

Digital Imaging. New York: Cygnus Publishing.

Digital Video. USA: Miller Feeman Publications.

New Media.pro. Toronto: Southam Inc.

Video Systems. USA: Interac/Primedia Publication.

VideoMaker. USA: VideoMaker Inc.

Websites

The URLs for the websites were verified by the writers prior to publication. Given the frequency with which these designations change, teachers should always verify the websites prior to assigning them for student use.

Adobe Photoshop website <http://www.adobe.com>

Contains information about Adobe Photoshop

Computer Arts Magazine Online www.computerarts.co.uk

Graphic and electronic tips, techniques, and tutorials

Corel Corporation website <http://www.corel.com/index.htm>

Contains information about CorelDraw

Desktop publishing <http://www.desktoppublishing.com/linkus.html>

Desktop publishing

Digital Imaging Magazine <http://www.digitalimagingmag.com>

A good source of digital video/editing online articles, links to user groups, and equipment information.

Digital Video Magazine <http://www.dv.com>

A good source of digital video/editing online articles, links to user groups, and equipment information.

Graphic Arts Technical Foundation <http://www.gatf.org>

Contains educational information on the graphic arts and helpful links to graphic utilities.

Graphic Designers' Paradise <http://desktoppublishing.com/design.html>

Contains information and advice for graphic designers.

New Media.pro Magazine <http://www.newmediapromagazine.com>

A good Canadian source of digital video/editing online articles, links to user groups, and equipment information.

Video Systems Magazine <http://www.videosystems.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Videomaker Magazine <http://www.videomaker.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Videonics Systems <http://www.videonics.com>

Articles on video/editing, links to user groups, industry information, and equipment information.

Videos

Basic Shooting. USA: Videomaker, Inc., 1994. 42 minutes.

Commercial Mania: Highlights from the Weirdest, Wackiest, Wildest Commercials of the 50's and 60's. California: Rhino Video, 1987. 30 minutes. RNVD 902

Video Editing. USA: Videomaker, Inc., 1994. 47 minutes.

Videography: The Guide to Making Videos. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. Eight 30-minute videos.

Websites for Teachers

Ontario Curriculum Centre <http://www.curriculum.org>

Ministry-approved resources, course profiles, and links to other educational sites.

Educational Computing Organization of Ontario (ECOO) <http://www.ecoo.org/>

Resources for teachers and links to other educational sites.

Education Network of Ontario (ENO) <http://www.enoreo.on.ca/>

Resources for teachers and links to other educational sites.

Media Awareness Network <http://www.media-awareness.ca/>

Practical support for teaching media in the classroom with links to other sites

Ontario Ministry of Education <http://www.edu.gov.on.ca/>

Ministry site with up-to-date information and useful links.

School Net <http://www.schoolnet.ca/>

Learning resources, programs, and links to other educational sites.

Technology Educators of Ontario (TEO) <http://www.octe.on.ca/>

Learning resources, programs, and links to other educational sites.

TV Ontario (Educational Programming & Services) <http://www2.tvo.org/eduprog/>

Learning resources, programs, and links to other educational sites.

TV Ontario (Edulinks) <http://www2.tvo.org/edulinks/>

Technological Education page with lesson plans and other resources to meet curriculum expectations using Internet-based resources. Links to other educational sites.

TV Ontario (Pdonline) <http://www.tvo.org/pdonline/>

Professional development for teachers online with links to other useful educational sites.

TV Ontario (OESS) <http://www.tvo.org/oess/>

Ontario Education Software Service – Ministry-licensed educational software.

YTV (InClass) <http://inclass.ytv.com/>

Media-related teacher resources and links to other sites.

Women in Trades & Technology Network <http://www.wittnn.com/>

An education and advocacy organization dedicated to promoting and assisting in the recruitment, training, and retention of women in trades and technology. Useful links to other sites.

OSS Considerations

Grade 12 Communications Technology, College/University Preparation is designated as a Technological Education, Part A, Broad-Based Technology program. The philosophy that underlies the teaching of broad-based technology is that students learn best by doing. University/College Preparation courses are designed to equip students with the knowledge and skills they require to meet the requirements for admission to college and university programs. (See *Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000* for a description of the different types of secondary school courses).

Ontario secondary school graduates are expected to be technologically literate as stated in *Ontario Secondary Schools, Grades 9 to 12: Program and Diploma Requirements, 1999*. They should be able to understand and apply technological concepts, use computers in various applications and analyse the implications of a wide range of technologies for individuals and society.

To ensure that all students in the province have equal opportunity to achieve their full potential, the education system must be free from discrimination and provide all students with a safe and secure environment so that they can participate fully and responsibly in the educational experience. Schools are also required to adopt measures to provide a safe environment for learning that is free from harassment of all types, violence and expressions of hate. Anti-discrimination education, equity/social justice issues, conflict resolution/violence prevention, community partnerships and faith development are addressed in the course. These support the Ontario Secondary School board policies as well as the Ontario Catholic School Graduate Expectations. For more information, consult Section 7.13 Anti-discrimination Education of the OSS document.

Career exploration is a component of all units and is aligned with *Choices Into Action: Guidance and Career Education Program Policy for Elementary and Secondary Schools, 1999*. Students have a broad range of career exploration opportunities.

Coded Expectations, Communications Technology, Grade 12, University/College Preparation, TGJ4M

Theory and Foundation

Overall Expectations

TFV.01 · apply the design process to develop solutions, products, processes, or services in response to complex challenges or problems in electronic, live, recorded, or graphic communications;

TFV.02 · describe the processes used to plan an independent project in communications technology;

TFV.03 · explain how to maximize the performance of electronic, live, recorded, or graphic communications systems;

TFV.04 · describe the different industry standards that apply to electronic, live, recorded, or graphic communications;

TFV.05 · describe the different forms of current communications systems and how they interface with one another.

Specific Expectations

The Design Process

TF1.01 – explain how a human need or want can be met through a new or improved product;

TF1.02 – apply the following steps of the design process to solve a variety of complex communications technology challenges or problems:

- identify what has to be accomplished (the problem);
- gather and record information, and establish a plan of procedures;
- brainstorm a list of as many solutions as possible;
- identify the resources required for each suggested solution, and compare each solution to the design criteria, refining and modifying it as required;
- evaluate the solutions (e.g., by testing, modelling, and documenting results) and choose the best one;
- produce a drawing, model, or prototype of the best solution;
- evaluate the prototype and what is required to produce it;
- communicate the solution, using one or more of the following: final drawings, technical reports, electronic presentations, flow charts, storyboards, mock-ups, prototypes, and so on;
- obtain feedback on the final solution and repeat the design process if necessary to refine or improve the solution.

Components, Systems, and Processes

TF2.01 – analyse colour theory and industry standards for colour manipulation and representation;

TF2.02 – demonstrate a working knowledge of signal conversion, amplification, and processing;

TF2.03 – research and describe the equipment and techniques used in the communications industry and in postsecondary programs;

TF2.04 – describe the roles of individuals within a communications system or process;

TF2.05 – describe the use of state-of-the-art technology (e.g., microwaves; fibre optics; wireless, streamed net casting, digital audio, and infrared communications systems).

Standards

TF3.01 – identify the purpose of industry formats in electronic, live, recorded, or graphic communications systems;

TF3.02 – describe the current guidelines, conventions, and rules used in communications design and production.

Skills and Processes

Overall Expectations

- SPV.01 · design and plan solutions to problems both individually and as members of a team;
- SPV.02 · select and safely use the appropriate technologies and resources to solve problems in electronic, live, recorded, or graphic communications technology;
- SPV.03 · organize and maintain complex communications systems;
- SPV.04 · use industry-recognized standards and formats when developing and recording solutions to problems;
- SPV.05 · use mathematics and language skills and apply scientific principles to design and set up communications systems and production processes for electronic, live, recorded, or graphic communications projects.

Specific Expectations

Organizational Skills

- SP1.01 – analyse and demonstrate the interpersonal and group skills required to work as part of a team;
- SP1.02 – develop a production plan for a project from its conception to its completion;
- SP1.03 – apply time management skills, including the use of software scheduling and project management software, to meet deadlines when solving problems.

Production Skills

- SP2.01 – operate and control devices effectively in communications technology projects;
- SP2.02 – use industry standard specific gauges and meters to monitor, test, and modify project requirements;
- SP2.03 – integrate various current communications technologies in their solutions;
- SP2.04 – select appropriate computer software and production techniques to complete projects;
- SP2.05 – connect digital and analog systems to process signals;
- SP2.06 – troubleshoot components of communications systems;
- SP2.07 – set up and operate the components and systems required to create and modify environments for communications productions (e.g., a live production studio, desktop publishing configurations, websites, test labs).

Documentation and Standards

- SP3.01 – develop a personal portfolio to use to document skills in communications technology;
- SP3.02 – use software programs to document the project planning and production process;
- SP3.03 – use appropriate graphics formats in pre-production documents and drawings.

Interdisciplinary Applications

- SP4.01 – select appropriate formulas to solve mathematical problems in production and post-production work (e.g., calculating resistance related to wire size when transmitting signals);
- SP4.02 – develop the technical vocabulary used in electronic, live, recorded, or graphic communications;
- SP4.03 – apply scientific principles related to light, colour, magnetism, and electricity.

Impact and Consequences

Overall Expectations

- ICV.01** · demonstrate an ability to make informed decisions related to the social, environmental, and economic consequences and impacts of the communications technology sector;
- ICV.02** · implement safe work practices when performing communications technology tasks;
- ICV.03** · identify the role of health and safety legislation in schools and in the communications sector;
- ICV.04** · describe postsecondary programs associated with the communications technology sector and evaluate the appropriateness of the programs to their career plans.

Specific Expectations

Impacts

- IC1.01** – identify potential consequences of specific communications technology activities for the individual and for society, and formulate potential alternatives to minimize harmful consequences (e.g., by assessing the effect of innovations in the transmission and reception of long-distance communications signals);
- IC1.02** – describe the negative impacts of communications technology activities on the environment and identify a variety of materials, processes, and waste management methods to reduce them;
- IC1.03** – explain the economic impact of the communications technology sector for the local community, the province, and the nation.

Safety and Legislation

- IC2.01** – use safe work practices and model the most appropriate ways of accomplishing specific operations;
- IC2.02** – develop and conduct safety audits and inspections of the school communications technology facility and implement a plan to address any deficiencies;
- IC2.03** – develop an effective emergency action plan for the school communications technology facility;
- IC2.04** – analyse the Occupational Health and Safety Act (OHSA) and implement the parts of it that relate specifically to the school communications technology facility;
- IC2.05** – identify the issues addressed in the Workplace Hazardous Materials Information System (WHMIS).

Education, Training, and Career Opportunities

- IC3.01** – demonstrate a knowledge of career activities within the communications technology sector, including those in creative occupations, management positions, and skilled trades;
- IC3.02** – demonstrate an understanding of their own strengths and limitations in preparation for careers in the communications technology sector;
- IC3.03** – investigate the opportunities for self-employment in the communications sector and the education and skills that would be required;
- IC3.04** – complete electronic portfolios that include their career and education plans;
- IC3.05** – identify the entry requirements to guilds and associations in the communications technology sector.

Ontario Catholic School Graduate Expectations

The graduate is expected to be:

A Discerning Believer Formed in the Catholic Faith Community who

- CGE1a** -illustrates a basic understanding of the **saving story** of our Christian faith;
- CGE1b** -participates in the **sacramental life** of the church and demonstrates an understanding of the centrality of the Eucharist to our Catholic story;
- CGE1c** -actively reflects on **God’s Word** as communicated through the Hebrew and Christian scriptures;
- CGE1d** -develops attitudes and values founded on Catholic **social teaching** and acts to promote social responsibility, human solidarity and the common good;
- CGE1e** -speaks the **language of life**... “recognizing that life is an unearned gift and that a person entrusted with life does not own it but that one is called to protect and cherish it.” (Witnesses to Faith)
- CGE1f** -seeks intimacy with God and celebrates **communion** with God, others and creation through prayer and worship;
- CGE1g** -understands that one’s purpose or **call in life** comes from God and strives to discern and live out this call throughout life’s journey;
- CGE1h** -respects the **faith traditions**, world religions and the life-journeys of **all people of good will**;
- CGE1i** -integrates faith with life;
- CGE1j** -recognizes that “sin, human weakness, conflict and forgiveness are part of the human journey” and that the cross, the ultimate sign of forgiveness is at the heart of **redemption**. (Witnesses to Faith)

An Effective Communicator who

- CGE2a** -listens actively and critically to understand and learn in light of gospel values;
- CGE2b** -reads, understands and uses written materials effectively;
- CGE2c** -presents information and ideas clearly and honestly and with sensitivity to others;
- CGE2d** -writes and speaks fluently one or both of Canada’s official languages;
- CGE2e** -uses and integrates the Catholic faith tradition, in the critical analysis of the arts, media, technology and information systems to enhance the quality of life.

A Reflective and Creative Thinker who

- CGE3a** -recognizes there is more grace in our world than sin and that hope is essential in facing all challenges;
- CGE3b** -creates, adapts, evaluates new ideas in light of the common good;
- CGE3c** -thinks reflectively and creatively to evaluate situations and solve problems;
- CGE3d** -makes decisions in light of gospel values with an informed moral conscience;
- CGE3e** -adopts a holistic approach to life by integrating learning from various subject areas and experience;
- CGE3f** -examines, evaluates and applies knowledge of interdependent systems (physical, political, ethical, socio-economic and ecological) for the development of a just and compassionate society.

A Self-Directed, Responsible, Life Long Learner who

- CGE4a** -demonstrates a confident and positive sense of self and respect for the dignity and welfare of others;
- CGE4b** -demonstrates flexibility and adaptability;
- CGE4c** -takes initiative and demonstrates Christian leadership;
- CGE4d** -responds to, manages and constructively influences change in a discerning manner;
- CGE4e** -sets appropriate goals and priorities in school, work and personal life;
- CGE4f** -applies effective communication, decision-making, problem-solving, time and resource management skills;
- CGE4g** -examines and reflects on one's personal values, abilities and aspirations influencing life's choices and opportunities;
- CGE4h** -participates in leisure and fitness activities for a balanced and healthy lifestyle.

A Collaborative Contributor who

- CGE5a** -works effectively as an interdependent team member;
- CGE5b** -thinks critically about the meaning and purpose of work;
- CGE5c** -develops one's God-given potential and makes a meaningful contribution to society;
- CGE5d** -finds meaning, dignity, fulfillment and vocation in work which contributes to the common good;
- CGE5e** -respects the rights, responsibilities and contributions of self and others;
- CGE5f** -exercises Christian leadership in the achievement of individual and group goals;
- CGE5g** -achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others;
- CGE5h** -applies skills for employability, self-employment and entrepreneurship relative to Christian vocation.

A Caring Family Member who

- CGE6a** -relates to family members in a loving, compassionate and respectful manner;
- CGE6b** -recognizes human intimacy and sexuality as God given gifts, to be used as the creator intended;
- CGE6c** -values and honours the important role of the family in society;
- CGE6d** -values and nurtures opportunities for family prayer;
- CGE6e** -ministers to the family, school, parish, and wider community through service.

A Responsible Citizen who

- CGE7a** -acts morally and legally as a person formed in Catholic traditions;
- CGE7b** -accepts accountability for one's own actions;
- CGE7c** -seeks and grants forgiveness;
- CGE7d** -promotes the sacredness of life;
- CGE7e** -witnesses Catholic social teaching by promoting equality, democracy, and solidarity for a just, peaceful and compassionate society;
- CGE7f** -respects and affirms the diversity and interdependence of the world's peoples and cultures;
- CGE7g** -respects and understands the history, cultural heritage and pluralism of today's contemporary society;
- CGE7h** -exercises the rights and responsibilities of Canadian citizenship;
- CGE7i** -respects the environment and uses resources wisely;
- CGE7j** -contributes to the common good.

Unit 2: Audio-Visual Production: Music Video

Time: 24 hours

Unit Description

In this unit students utilize the skills and concepts of audio/visual production to produce a music video in analogue and digital formats. Including and expanding upon design concepts and production skills developed in the Grade 11 Communications Technology Curriculum, students produce a promotional video for a band (either real or imaginary) enabling them also to develop and refine design and problem-solving skills associated with media production. Students employ a variety of skills, including designing and implementing a lighting plot and setting up audio recording/mixing equipment. In addition, students create a shooting script, plan camera locations and movements, videotape and edit a live performance. Throughout the unit cooperative work strategies and video content reflect the moral and ethical philosophy of the gospel values. This unit prepares students for post secondary education leading to careers in audio/visual production.

Unit Synopsis Chart

Activity	Time	Learning Expectations	Assessment Categories	Tasks
2.1 Setting Up of Lighting Equipment for the Recording of a Live Performance	4 hours	TFV.03, TF2.01, SPV.05, SP2.01, SP4.03, ICV.02, IC2.01 CGE 2a, 2b, 2c, 3b, 3c, 3d, 4b, 4f, 5a, 5e, 5f, 5g, 7b, 7j	Knowledge/ Understanding Application	Prepare lighting equipment for live performance and recording.
2.2 Setting Up of Audio Equipment for the Recording of a Live Performance	4 hours	TFV.05, TF2.05, SPV.03, SP2.03, SP2.05, SP2.06, IC2.01 CGE 2a, 2b, 2c; 3b, 3c, 3d, 4b, 4f; 5a, 5e, 5f, 5g, 7b, 7j	Knowledge/ Understanding Application	Set audio equipment in place for live performance and recording.
2.3 Setting Up of Video Equipment for the Recording of a Live Performance	4 hours	SPV.03, SPV.05, SP2.02, SP2.05, SP4.02, IC2.01 CGE 2a, 2b, 2c, 3b, 3c, 3d, 4b, 4f, 5a, 5e, 5f, 5g, 7b, 7j	Knowledge/ Understanding Application	Prepare video equipment for live performance and recording.
2.4 Production For the Recording of a Live Performance	4 hours	SPV.03, SPV.05, SP1.01, SP2.01, SP2.02, SP2.04, SP2.05, SP2.06, SP2.07, SP4.02, IC2.01 CGE1d, 2a, 2b, 2c, 2d, 3b, 3c, 3d, 3e, 4b, 4d, 4e, 4f, 5a, 5b, 5e, 5f, 5g, 7a, 7b, 7j	Application Communication	Audio/Video recording and titling of live performance.
2.5 Analogue or Digital Editing	8 hours	SP2.01, SP2.02, SP2.03, SP2.04, SP3.02, SP4.02, SPV.02 CGE1d, 2a, 2b, 2c, 2d, 2e, 3b, 3c, 3d, 3e 4b, 4d, 4e, 4f, 5a, 5b, 5e, 5f, 5g, 7a, 7b, 7j	Application Communication	Edit source material for final videotape.

Activity 2.1: Setting Up of Lighting Equipment for the Recording of a Live Performance

Time: 4 hours

Description

Students research technical information concerning lighting instruments and their uses, and wiring and instrument placement for the recording of a live performance. Students complete the forms and information sheets included in Appendices 2.1.1 – Student Work Sheet - Lighting Instruments and their Applications, 2.1.2 – Samples of Lighting Forms and 2.1.3 – Working with Electricity Quiz, and use the information to document and set up the best possible lighting plot with the available equipment.

Strand(s) & Learning Expectations

Ontario Catholic School Graduate Expectations

CGE2a - listens actively and critically to understand and learn in light of gospel values;

CGE2b - reads, understands, and uses written materials effectively;

CGE2c - presents information and ideas clearly and honestly and with sensitivity to others;

CGE3b - creates, adapts, and evaluates new ideas in light of the common good;

CGE3c - thinks reflectively and creatively to evaluate situations and solve problems;

CGE3d - makes decisions in light of gospel values with an informed moral conscience;

CGE4b - demonstrates flexibility and adaptability;

CGE4f - applies effective communication, decision-making, problem-solving, time and resource management skills;

CGE5a - works effectively as an interdependent team member;

CGE5e - respects the rights, responsibilities and contributions of self and others;

CGE5f - exercises Christian leadership in the achievement of individual and group goals;

CGE5g - achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others;

CGE7b - accepts accountability for one's own actions;

CGE7j - contributes to the common good.

Strand(s): Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

TFV.03 - explain how to maximize the performance of electronic, live, recorded, or graphic communications systems;

SPV.05 - use mathematics and language skills and apply scientific principles to design and set up communications systems and production processes for electronic, live, recorded, or graphic communications projects;

ICV.02 - implement safe work practices when performing communications technology tasks.

Specific Expectations

TF2.01 - analyse colour theory and industry standards for colour manipulation and representation;

SP2.01 - operate and control devices effectively in communications technology projects;

SP4.03 - apply scientific principles related to light, colour, magnetism, and electricity;

IC2.01 - use safe work practices and model the most appropriate ways of accomplishing specific operations.

Prior Knowledge & Skills

- A basic understanding of lighting theory and instruments acquired in Grade 11, Communications Technology TGJ3M. Key concepts are:
 - quality of light;
 - colour temperature;
 - intensity of light;
 - lighting techniques.

Planning Notes

- All student work must contain positive images of race, gender, and religion. Stereotypes, acts of violence, sexual themes, or use of profanity in student work are unacceptable.
- If producing a music video is not possible, develop a similar activity with other areas of study across the curriculum. For example, the process of establishing the lighting plot can be applied to live performances put on by drama classes or music classes, or students can do audio/visual recordings of larger school functions.
- Requires a complete inventory of all available lighting instruments, e.g., dimmer equipment is necessary before students begin to plan their productions.
- The teacher may invite a guest speaker from a local audio/visual production company to lend insight into production processes and real world contexts.
- The teacher may acquire videos from equipment suppliers that demonstrate lighting situations and techniques.
- Preview and approve any materials to be viewed, as the content of some music videos and other recordings of live performances can be offensive to and disrespectful of the belief systems of some students. Also, exercise vigilance, care and sensitivity to ensure that material selected for use shows no bias towards gender or sexual orientation.
- Make copies of Appendix 2.1.1 and 2.1.2.

Teaching/Learning Strategies

- Throughout the activity encourage attitudes and values founded on Catholic social teachings, which promote social responsibility, human solidarity and the common good.
- Distribute relevant information on available equipment and assignment sheets as well as evaluation forms.
- Show students examples of music videos and other recordings of live performances illustrating the technical knowledge and skills necessary to meet the complex challenge that lighting a live performance presents.
- For further instruction invite a guest speaker to talk to students or show relevant sections of instructional videos (see Video Resources).
- Reviews camera controls and functions of the available equipment, as well as camera angles and composition principles covered in the Grade 11 Curriculum.
- Students investigate the location where they will be recording in order to plan for the sorts of situations that they will encounter.
- Students complete the research and theory assignments (see Appendices 2.1.1 – Student Work Sheet - Lighting Instruments and their Applications, 2.1.2 - Samples of Lighting Forms, and develop a lighting plot.
- Offer students guidance and direct instruction in equipment use as they match lighting instruments, lighting plot and control devices to the technical set up.
- Using their research findings and previously-developed lighting plots as guidelines, students hang the necessary lighting instruments for the performance.

- Students focus and balance the lights.
- Students run a test of the equipment and engage in a performance rehearsal (if possible) to ensure that they are achieving the desired quality and control of the lighting.
- Students complete a cue sheet for the performance.
- During the performance students operate and troubleshoot the lighting equipment.
- Students complete a quiz on Working with Electricity (see Appendix 2.1.3).

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Categories
Research and Theory	Anecdotal comments Class Discussion	Formative	Knowledge/Understanding Communication
Quiz	Marking Scheme	Summative	Knowledge/Understanding Thinking/Inquiry Communication
Production Process	Checklist Rubric Conferencing	Formative and Summative	Communication Application

Accommodations

The teacher consults individual student IEPs for specific direction on accommodation and adapts the activity and teaching strategies to meet the needs of individual students. Students' individual needs may be accommodated through an adaptation of the design and/or production stages of the activity.

Resources

The equipment and tools required to complete the activity include lighting instruments (e.g., dimmer equipment) and necessary cabling.

General

Samples of student work.

Manufacturer's equipment manuals.

Software manuals.

Books

Birmingham, Alan, et al. *The Video Studio*. London: Focal Press, 1994.

Hitchcock, Peter. *Videography: The Guide to Making Videos*. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. ISBN 0-9696261-0-X

Hone, Rick and Liz Flynn. *Video in Focus: A Guide to Viewing and Producing Video*. Toronto: Globe/Modern Curriculum Press, 1992. ISBN 0-888996-344-4

Hone, Rick and Liz Flynn. *Video in Focus: A Guide to Viewing and Producing Video, Teacher's Guide*. Toronto: Globe/Modern Curriculum Press, 1992. ISBN 0-888996-281-2

Kyker, Keith and Christopher Curchy. *Television Production: A Classroom Approach*. USA: Librairies Unlimited, 1993. ISBN 1-56308-101-6

Stanaway, Jim. *A Beginner's Guide to Video Communications*. Chicago, NTC Publishing, 1997. ISBN 0-8442-5998-5

Utz, Peter. *Today's Video, Equipment, Setup and Production*. USA: Prentice-Hall, 1992. ISBN 0-13925033-6

Wiese, Michael. *The Independent Film & Videomaker's Guide*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-57-4

Wurtzel, Alan. *Television Production*. Toronto: McGraw-Hill, 1989.

Zettl, Herbert. *Video Basics*. Toronto: Nelson Canada, 1995.

Videos

Various samples of instructional videos collected by the individual teacher.

Basic Shooting. USA: Videomaker, Inc., 1994. 42 minutes.

Video Editing. USA: Videomaker, Inc., 1994. 47 minutes.

Videography: The Guide to Making Videos. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. Eight 30-minute videos.

Magazines

Digital Imaging. New York: Cygnus Publishing.

Digital Video. USA: Miller Feeman Publications.

New Media.pro. Toronto: Southam Inc.

Video Systems. USA: Interac/Primedia Publication.

VideoMaker. USA: VideoMaker Inc.

Websites

Digital Imaging Magazine – <http://www.digitalimagingmag.com>

A good source of digital video/editing online articles, links to user groups, and equipment information.

New Media.pro Magazine – <http://www.newmediapromagazine.com>

A good Canadian source of digital video/editing online articles, links to user groups, and equipment information.

Videomaker Magazine – <http://www.videomaker.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Videonics Systems – <http://www.videonics.com>

Articles on video/editing, links to user groups, industry information, and equipment information.

Video Systems Magazine – <http://www.videosystems.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Appendix 2.1.1

Student Work Sheet – Lighting Instruments and their Applications

Using textbooks, equipment manuals, the Internet and any other available sources for information, research the necessary information on lighting instruments. Complete the following application chart and decide which lighting instruments are best suited to the performance space, performers and overall intention of their production. Lighting instruments are designated by using their generic names.

(Note: answers are in italics.)

Purpose	Instrument	Application	Positioning
Key Light	<i>Fresnel</i>	<i>Main source of lighting. Other lights are placed with reference to the key light. Front placement reduces modeling of the subject. As light is angled it increases modeling and emphasizes texture.</i>	<i>30° to 40° vertical angle from the side of the camera.</i>
Back Light	<i>Fresnel</i>	<i>Enhances separation of foreground subject from the background. Increases perception of depth.</i>	<i>Directly behind or at a slight angle behind the foreground subject. 30° to 45° vertical angle.</i>
Fill Light	<i>Fresnel Scoop Broad</i>	<i>Fills in shadows cast by the key light. Intensity of this light is set relative to the key light.</i>	<i>Opposite side of the key light.</i>
Background Light	<i>Fresnel Scoop Ellipsoidal</i>	<i>Lights backgrounds, sets, etc. Balanced relative to the foreground lights. Used to model details or texture of backgrounds. Front position flattens background. Steep vertical and horizontal angle increases modeling.</i>	<i>Variable, depending on the desired effect.</i>
Kicker and Side Light	<i>Fresnel</i>	<i>Accents highlights and object form. Used to create nighttime effects.</i>	<i>90° angle to the side of the subject.</i>
Cyclorama Light	<i>Scoops Strip lights Cyc projection lights</i>	<i>Used to light a cyclorama. Used to create special effects and mood.</i>	<i>Hung from above or mounted on the floor.</i>

Appendix 2.1.2

Samples of Lighting Forms

The Lighting Plot indicates the position of each lighting instrument that is used during the performance. To create a lighting plot for a formal studio setting or a stage, a detailed floor plan and a drawing of the lighting grid are necessary. Once the lighting plot is complete, instruments are assigned to dimmer circuits. An assortment of lights (e.g., all of the performer's key lights) may be assigned to a single dimmer, allowing the operator to control a number of lights with one controller. The cue sheet indicates the sequences of light changes throughout the performance.

The Light Plot Key is used to indicate the lighting instrument from the lighting plot, the size, function and dimmer assignment number.

Light Plot Key

Instrument Number	Instrument	Function	Dimmer
1	2K Fresnel	Vocalist Key	1
2	IK Fresnel	Vocalist Fill	2
3	IK Fresnel	Vocalist Background	3

The dimmer sheet indicates which instruments are to be patched into which dimmers. This form is used when balancing the lights and creating the lighting cue sheet.

Dimmer/Patch Sheet

Dimmer #	Setting	Patch Number	Function	Presets
1	10	24	Vocalist Key	none
2	8	12	Vocalist Fill	none
3	6	14	Vocalist Back	3

The cue sheet indicates each lighting cue and the dimmer settings involved. The lighting board operator follows the cue sheet throughout the performance to change lighting levels and lighting areas.

Cue Sheet

Cue #	Dimmers	Description
1	1, 2, 3	Lights up on vocalist only
2	1 through 10 and 24, 18, 7	Full band

Appendix 2.1.3

Working with Electricity Quiz

1. Use the space provided to match the term with the most appropriate definition.

(Note: answers are in italics.)

The origin of electrical potential (*e*)

The unit of measurement of electrical potential (*d*)

The movement of electrons through a conductor (*a*)

A device that converts electrical energy into another form of energy (*f*)

The difference in electrical charge between two bodies (*c*)

The opposition to electron flow within a Conductor (*g*)

A device to protect a circuit from an overload (*h*)

The unit of measurement of electrical current (*b*)

a. electrical current

b. ampere

c. potential

d. volts

e. source

f. load

g. resistance

h. circuit breaker

2. Describe the properties of effective conductors and insulators of electricity. Provide examples of each.

An effective conductor is any material with an abundance of free electrons, such as copper or water.

An effective insulator is a material with few free electrons, such as rubber and most plastics.

3. Explain what is meant by a short circuit and how grounds and fuses can minimize the danger of a short circuit.

A short circuit is a low-resistance alternative to the primary circuit, resulting in a large and dangerous surge of current. In a grounded circuit, low resistance in the path to the earth provides a safe path for the current to follow. Fuses are sensitive to high current flow, so they cut the flow of electricity to shorted equipment.

4. Describe what you believe to be the most important safety rule when working with electrical devices. Justify your choice.

(e.g.) I think the most important rule is to unplug the equipment if you are going to work on it. If you disconnect equipment from the source of electricity there is no chance of electrical shock.

5. Complete the following chart identifying the current-carrying capacity of standard AWG wire thickness.

Gauge of Wire	10	(12)	14	16	18
Capacity in Amps	(25)	20	(15)	(6)	(3)

6. Use the power formula to solve the following problems.

- a) If the output voltage of a dimmer is 117 VAC and the dimmer can handle 15 amperes of current, what is the maximum safe load that can be placed on the dimmer?

$$W = VA$$

$$W = 117 \times 15$$

$$W = 1755 \text{ watts}$$

- b) How many 500-watt lighting instruments can be safely connected to a 2.4KW dimmer using 14-gauge cable? The system voltage is 120VAC.

$$W = VA$$

$$W = 120 \times 15 \text{ (maximum amps of 14-gauge wire)}$$

$$W = 1800 \text{ watts}$$

Maximum load of cable is 1800 watts

Maximum number of 500-watt instruments = $1800/500 = 3.6$ (3 in practical terms)

Activity 2.2: Setting Up of Audio Equipment for the Recording of a Live Performance

Time: 4 hours

Description

Students research technical information with respect to microphone types and uses, cables and microphone placement for the recording of the live performance. Students complete the forms and information sheets included in Appendices 2.2.1 – Student Research Sheet - Microphone Types and Applications, 2.2.2 – Audio Question and Answer Sheet, and 2.2.3 – Audio Evaluation, and use the information to record the best possible sound with the available equipment. Issues of Christian morality are discussed with respect to the media's ability to manipulate the public's emotion and perception of truth through subtle manipulation of audio.

Strand(s) & Learning Expectations

Ontario Catholic School Graduate Expectations

CGE2a - listens actively and critically to understand and learn in light of gospel values;
CGE2b - reads, understands, and uses written materials effectively;
CGE2c - presents information and ideas clearly and honestly and with sensitivity to others;
CGE3b - creates, adapts, and evaluates new ideas in light of the common good;
CGE3c - thinks reflectively and creatively to evaluate situations and solve problems;
CGE3d - makes decisions in light of gospel values with an informed moral conscience;
CGE4b - demonstrates flexibility and adaptability;
CGE4f - applies effective communication, decision-making, problem-solving, time and resource management skills;
CGE5a - works effectively as an interdependent team member;
CGE5e - respects the rights, responsibilities and contributions of self and others;
CGE5f - exercises Christian leadership in the achievement of individual and group goals;
CGE5g - achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others;
CGE7b - accepts accountability for one's own actions;
CGE7j - contributes to the common good.

Strand(s): Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

TFV.05 - describe the different forms of current communications systems and how they interface with one another;
SPV.03 - organize and maintain complex communications systems.

Specific Expectations

TF2.05 - describe the use of state-of-the-art technology (e.g., microwaves, fibre optics, wireless, streamed net casting, digital audio and infrared communications systems);
SP2.03 - integrate various current communications technologies in their solutions;
SP2.05 - connect digital and analog systems to process signals;
SP2.06 - troubleshoot components of communications systems;
IC2.01 - use safe work practices and model the most appropriate ways of accomplishing specific operations.

Prior Knowledge & Skills

- A basic understanding of audio theory and equipment acquired in Grade 11, Communications Technology TGJ3M Key concepts are:
 - pickup and generation of sound;
 - aesthetics of sound (perspective, energy, presence);
 - storage of sound;
 - control of sound properties through a mixer.

Planning Notes

- All student work must contain positive images of race, gender, and religion. Stereotypes, acts of violence, sexual themes, or use of profanity in student work are unacceptable.
- Preview and approve any materials to be viewed as the content of some music videos and other recordings of live performances can be offensive to and disrespectful of the belief systems of some students. Also, exercise vigilance, care, and sensitivity to ensure that material selected for use shows no bias towards gender or sexual orientation.
- If producing a music video is not possible, develop a similar activity with other areas of study across the curriculum. For example, the process of audio recording can be applied to live performances put on by drama classes or music classes, or students can do audio/visual recordings of larger school functions.
- Complete an inventory of all available audio equipment before students begin to plan their productions.
- Inspect audio equipment, power sources, and cabling to confirm they are safe and in operating condition.
- The teacher may invite a guest speaker from a local audio/visual production company to lend insight into production processes and real-world contexts.
- The teacher may acquire videos from equipment suppliers on the subject of audio principles and practices.
- Make copies of materials (Appendices 2.2.1, 2.2.2, and 2.2.4).

Teaching/Learning Strategies

- Throughout the activity, encourage attitudes and values founded on Catholic social teachings, which promote social responsibility, human solidarity, and the common good.
- Distribute relevant information and assignment sheets as well as evaluation forms.
- Students view examples of music videos and other recordings of live performances to appreciate the technical knowledge and skills necessary to meet the complex challenge that providing the sound for a live performance presents. For further instruction the teacher may invite a guest speaker to talk to the students or may show relevant sections of instructional videos (see Video Resources).
- Review controls and functions of the available audio equipment, as well as audio recording principles covered in the Grade 11 Curriculum.
- Students investigate the location where they will be recording in order to plan for the sorts of situations that they will encounter.
- Students complete the research and theory assignments (see Appendices 2.2.1 – Student Research Sheet - Microphone Types and Applications, and 2.2.2 – Audio Question and Answer Sheet) before attempting to set up the audio equipment for recording.
- After the research portion of the assignment is complete, students demonstrate their skills and knowledge by setting up the necessary equipment to record the audio portion of the performance.
Note: refer to Appendix 2.2.4 – Production Tips for details on audio setup.

- The teacher offers guidance and direct instruction in equipment use as the students match microphones, cabling, and recording devices to various areas of the technical set up.
- Students run a test of the equipment and engage in a performance rehearsal (if possible) to ensure that they are achieving the desired signal control and quality.
- During the performance students monitor and troubleshoot the sound equipment.
- Students take a quiz on audio knowledge.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Categories
Research Theory	Anecdotal Comments Class Discussion	Formative	Knowledge/Understanding Communication
Quiz	Marking Scheme	Summative	Knowledge/Understanding Thinking/Inquiry
Audio Setup	Checklist Rubric Observation Conferencing	Formative and summative	Thinking/Inquiry Application

Resources

The equipment and tools required to complete the activity include microphones, audio equipment and necessary cabling.

General

Samples of student work

Manufacturer's equipment manuals

Software manuals

Books

Alkin, Glyn. *Sound Recording and Reproduction*. London: Focal Press, 1994.

Birmingham, Alan, et al. *The Video Studio*. London: Focal Press, 1994.

Hitchcock, Peter. *Videography: The Guide to Making Videos*. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. ISBN 0-9696261-0-X

Kyker, Keith and Christopher Curchy. *Television Production: A Classroom Approach*. USA: Librairies Unlimited, 1993. ISBN 1-56308-101-6

Millerson, Gerald. *Video Camera Techniques*. London: Focal Press, 1994.

Stanaway, Jim. *A Beginner's Guide to Video Communications*. Chicago, NTC Publishing, 1997. ISBN 0-8442-5998-5

Utz, Peter. *Today's Video, Equipment, Setup and Production*. USA: Prentice-Hall, 1992. ISBN 0-13925033-6

Utz, Peter. *Recording Great Audio*. USA: Quantum Publishing, Inc. 1989. ISBN 0-930633-15-6

Wiese, Michael. *The Independent Film & Videomaker's Guide*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-57-4

Wurtzel, Alan. *Television Production*. Toronto: McGraw-Hill, 1989.

Zettl, Herbert. *Video Basics*. Toronto: Nelson Canada, 1995.

Videos

Various samples of instructional videos collected by the individual teacher.

Commercial Mania: Highlights from the Weirdest, Wackiest, Wildest Commercials of the 50's and 60's. California: Rhino Video, 1987. 30 minutes. RNVD 902

Basic Shooting. USA: Videomaker, Inc., 1994. 42 minutes.

Video Editing. USA: Videomaker, Inc., 1994. 47 minutes.

Videography: The Guide to Making Videos. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. Eight 30-minute videos.

Magazines

New Media.pro. Toronto: Southam Inc.

Video Systems. USA: Interac/Primedia Publication.

VideoMaker. USA: VideoMaker Inc.

Websites

Digital Imaging Magazine – <http://www.digitalimagingmag.com>

A good source of digital video/editing online articles, links to user groups, and equipment information.

Digital Video Magazine – <http://www.dv.com>

New Media.pro Magazine – <http://www.newmediapromagazine.com>

A good Canadian source of digital video/editing online articles, links to user groups, and equipment information.

Videomaker Magazine – <http://www.videomaker.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Videonics Systems – <http://www.videonics.com>

Articles on video/editing, links to user groups, industry information, and equipment information.

Video Systems Magazine – <http://www.videosystems.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Appendix 2.2.1

Student Reference Sheet – Microphone Types and Applications

Using textbooks, local businesses or the Internet as sources for information, students complete the following chart and decide which types of microphones are best suited to the performance space, performers and available audio/video recording equipment being used in their production. Commercial examples for each type of microphone are available from a variety of retailers or manufactures. (**Note:** answers are in italics.)

Microphone Type	Pickup Pattern	Typical Use	Manufacture & Model Number
Wired Lavalier microphone	<i>Omnidirectional</i>	<i>Tie-clip microphone used for interviews and talk shows.</i>	
Handheld or stand mounted <u>condenser</u> microphone	<i>Cardioid</i>	<i>Good for live entertainment, instrumental, and vocal performances.</i>	
Handheld or stand mounted <u>dynamic</u> microphone #1	<i>Cardioid</i>	<i>Emphasizes flat frequency response. Excellent for recording sessions and on stage performance.</i>	
Handheld or stand mounted <u>dynamic</u> microphone #2	<i>Omnidirectional</i>	<i>Ideal for handheld use. Resistance to wind noise is very good. Good for remote location recordings.</i>	
Handheld or stand mounted <u>dynamic</u> microphone #3	<i>Super Cardioid</i>	<i>Excellent response for vocalists. Good for close mike work with instruments and vocalists.</i>	
Shotgun	<i>Super Cardioid</i>	<i>Good pickup at relatively long distances. Can be boom mounted or handheld.</i>	
Boundary microphone	<i>Variable depending on make and model Typically hemispherical</i>	<i>Excellent for conference tables, hidden for stage use, some instrument miking.</i>	
Wireless microphone systems with receiver and transmitter	<i>Variable depending on make and model</i>	<i>Good for remote newsgathering (ENG), remote productions, and where inconspicuous, wire-free microphones are required.</i>	

Appendix 2.2.2

Audio Question and Answer Sheet

Using textbooks, the Internet, equipment manuals, or other sources for information, students answer the following question with respect to audio production. (**Note:** answers are in italics.)

1. Define impedance. How is it measured?
The apparent resistance a circuit presents to an alternating current.
Measured in units called ohms.
2. What are the characteristics of Unbalanced Audio Cable?
 - *Single conductor and a grounded shield*
 - *Used for “mic-in” jacks rated at 600 ohms and “line-in” or “auxiliary-in” jacks rated at 10 000 ohms or higher*
 - *Subject to greater interference as distances increase*
 - *Identified by “RCA” jacks, mini-plugs or phone jacks*
3. What are the characteristics of Balanced Audio Cable?
 - *Two conductors and a grounded shield*
 - *Conductors carry identical signals but one is inverted and opposite in polarity*
 - *Interference picked up by the conductors will have the same polarity on both; however, when signals are recombined in a transformer, interference cancels itself out.*
 - *Used for 60 ohm “line” or 50-250 ohm microphone inputs*
 - *Identified by a cannon (XLR) connector*
4. What is a VU meter?
 - *A VU meter visually displays (in volume units) the strength of the audio signal.*
 - *Used to display control of various sound levels.*
5. Define audio equalization.
 - *Equalization is a process used to correct deficiencies in sound by altering the amplitude of narrow bands within the audio frequency.*
6. In what ways do Graphic and Parametric equalizers differ?
 - *Graphic equalizers divide the available audio frequency into a series of narrow bands.*
 - *Parametric equalizers let you set the target frequency and set the amount of boost or attenuation.*
 - *Graphic equalizers let you match sounds recorded with different microphones under varying conditions.*
 - *Parametric equalizers are better at isolating and reducing the contribution of undesirable background sounds.*
7. Define the following microphone pickup patterns:
 - a) Omnidirectional Pattern
 - *Picks up sound equally well from all directions.*
 - b) Cardioid Pattern
 - *More sensitive to sounds from a heart shaped area in front of the microphone.*
 - c) Shotgun or Supercardioid Pattern
 - *Pulls in a narrow range of sound from a distance in front of the microphone.*

Appendix 2.2.3

Audio Checklist

Criteria	Yes	No
Setup		
Power cables installed and secured.		
Recording cables installed and secured.		
All plugs and connectors fit equipment.		
Impedances and levels on all connected devices match.		
Sound Quality		
Sound is audible.		
Consistent amplitude.		
Amplitude from different sources balanced.		
Range of frequencies is balanced from each source.		
Interference, hum, or squeal is eliminated.		
Background noise is eliminated.		
Microphone noise is eliminated.		

Appendix 2.2.4

Production Tips

Production tips are provided to help teachers and students recognize areas that may require particular attention.

- Ensure cables, plugs and connectors fit the equipment to be used. Match impedances and levels on each piece of equipment.
- Estimate equipment and microphone placements and the required lengths of audio cable (leaving some room for error). Microphones should be positioned 15 to 30 centimetres from the performer's mouth.
- Lay out cables and secure them to the ground with tape.
- If possible, monitor all sound levels using a Volume Units (VU) meter.
- If possible, monitor the sound being recorded. Listen for high levels of background noise, hum, distortion or interference in the lines.
- Monitor the performers during rehearsals for movements or habits that adversely affect sound quality.
- Clearly label all equipment lines and sliders on any mixers or other equipment.

Activity 2.3: Setting Up of Video Equipment for the Recording of a Live Performance

Time: 4 hours

Description

Students review technical information with respect to the available video equipment. They review camera operations and connections in preparation for the recording of the live performance, then complete a short video assignment that concentrates on focusing and camera movements. Students also complete the research and information sheets included in Appendices 2.3.1 – Inside the Video Camera Research Assignment, and 2.3.2 – Video Recording Methods, and use the information to determine the best possible strategies to employ in order to videotape the performance with the available video equipment.

Strand(s) & Learning Expectations

Ontario Catholic School Graduate Expectations

CGE2a - listens actively and critically to understand and learn in light of gospel values;

CGE2b - reads, understands, and uses written materials effectively;

CGE2c - presents information and ideas clearly and honestly and with sensitivity to others;

CGE3b - creates, adapts, and evaluates new ideas in light of the common good;

CGE3c - thinks reflectively and creatively to evaluate situations and solve problems;

CGE3d - makes decisions in light of gospel values with an informed moral conscience;

CGE4b - demonstrates flexibility and adaptability;

CGE4f - applies effective communication, decision-making, problem-solving, time and resource management skills;

CGE5a - works effectively as an interdependent team member;

CGE5e - respects the rights, responsibilities and contributions of self and others;

CGE5f - exercises Christian leadership in the achievement of individual and group goals;

CGE5g - achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others;

CGE7b - accepts accountability for one's own actions;

CGE7j - contributes to the common good.

Strand(s): Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

SPV.03 - organize and maintain complex communications systems;

SPV.05 - use mathematics and language skills and apply scientific principles to design and set up communications systems and production processes for electronic, live, recorded, or graphic communications projects.

Specific Expectations

SP2.02 - use industry standard specific gauges and meters to monitor, test, and modify project requirements;

SP2.05 - connect digital and analog systems to process signals;

SP4.02 - develop the technical vocabulary used in electronic, live, recorded, or graphic communications;

IC2.01 - develop and conduct safety audits and inspections of the school communications technology facility and implement a plan to address any deficiencies.

Prior Knowledge & Skills

- A basic understanding of the principles and equipment of video recording acquired in Grade 11 Communications Technology TGJ3M. Key concepts are:
 - camera controls and functions;
 - visual composition;
 - camera movement;
 - camera angles.

Planning Notes

- Complete an inventory of all available camera/video equipment before students begin to plan their productions.
- Inspect cameras, VTRs, switching equipment, power sources, and cabling to confirm they are safe and in operating condition.
- The teacher may invite a guest speaker from a local audio/visual production company to lend insight into production processes and real-world contexts.
- The teacher may acquire videos from equipment suppliers on the subject of video recording principles and practices.
- Make copies of assignments and information handouts (Appendices 2.3.1, 2.3.2, and 2.3.3).

Teaching/Learning Strategies

- Throughout the activity, encourage attitudes and values founded on Catholic social teachings, which promote social responsibility, human solidarity, and the common good.
- Distribute relevant information and assignment sheets as well as evaluation forms.
- Students keep a daily log sheet, recording brief notes of their accomplishments each day and outlining any future needs that this activity may require.
- Students view examples of music videos and other recordings of live performances to appreciate the technical knowledge and skills necessary to meet the complex challenge that videotaping a live performance presents.
- For further instruction, invite a guest speaker to talk to the students or show relevant sections of instructional videos (see Video Resources).
- Review camera controls and functions, as well as camera angles and composition principles covered in the Grade 11 Curriculum.
- Students investigate the location where they will be recording in order to plan for the sorts of situations that they will encounter as they videotape the performance.
- Students complete a research assignment (see Appendix 2.3.1 – Inside the Video Camera Research Assignment) and are given information about video recording (see Appendix 2.3.2 – Video Recording Methods).
- Students complete a short video assignment to practise camera operation, moves, and focusing skills, using a tripod and a hand-held camera.
- After the research and the practice assignments are complete, students demonstrate their skills and knowledge by setting up the necessary video equipment to record the music performance. **Note:** refer to Appendix 2.3.3 – Production Tips for details on video setup.
- Offer students guidance and direct instruction in equipment use as they match compositional or thematic concerns with camera operations and cabling requirements.
- Students run a test of the equipment and videotape a performance rehearsal (if possible) to ensure that they are achieving the desired quality of the video signals.
- Students review the videotape to identify those areas of the videotaping that need improvement or alterations with respect to camera positions, movements, and focusing.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Categories
Research and Theory	Anecdotal Comments Class Discussion	Formative	Knowledge/Understanding Communication
Quiz	Marking Scheme	Summative	Knowledge/Understanding Thinking/Inquiry
Video Setup	Checklist Rating Scale Observation Conferencing	Formative and summative	Thinking/Inquiry Communication Application

Resources

The equipment and tools required to complete the activity include cameras, VTRs, switching equipment, power sources, and cabling.

General

Samples of student work
Manufacturer's equipment manuals
Software manuals

Books

Andersen, Neil and John J. Punjente, SJ. *Scanning Television: Videos for Media Literacy in Class*. Toronto: Harcourt Brace & Company, 1997. ISBN 0774701730

Bermingham, Alan [et al.]. *The Video Studio*. London: Focal Press, 1994.

Hitchcock, Peter. *Videography: The Guide to Making Videos*. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. ISBN 0-9696261-0-X

Hone, Rick and Liz Flynn. *Video in Focus: A Guide to Viewing and Producing Video*. Toronto: Globe/Modern Curriculum Press, 1992. ISBN 0-888996-344-4

Hone, Rick and Liz Flynn. *Video in Focus: A Guide to Viewing and Producing Video, Teacher's Guide*. Toronto: Globe/Modern Curriculum Press, 1992. ISBN 0-888996-281-2

Katz, Steven. *Film Directing – Shot by Shot*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-10-8

Kyker, Keith and Christopher Curchy. *Television Production: A Classroom Approach*. USA: Libraries Unlimited, 1993. ISBN 1-56308-101-6

Millerson, Gerald. *Video Camera Techniques*. London: Focal Press, 1994.

Stanaway, Jim. *A Beginner's Guide to Video Communications*. Chicago, NTC Publishing, 1997. ISBN 0-8442-5998-5

Utz, Peter. *Today's Video, Equipment, Setup and Production*. USA: Prentice-Hall, 1992. ISBN 0-13925033-6

Vineyard, Jeremy. *Setting Up Your Shots*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-74-4

Ward, Peter. *Basic Betacam Camera work*. London: Focal Press, 1994.

Wiese, Michael. *The Independent Film & Videomaker's Guide*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-57-4

Wurtzel, Alan. *Television Production*. Toronto: McGraw-Hill, 1989.

Zettl, Herbert. *Video Basics*. Toronto: Nelson Canada, 1995.

Videos

Various samples of instructional videos collected by the individual teacher.

Basic Shooting. USA: Videomaker, Inc., 1994. 42 minutes.

Commercial Mania: Highlights from the Weirdest, Wackiest, Wildest Commercials of the 50's and 60's. California: Rhino Video, 1987. 30 minutes. RNVD 902

Video Editing. USA: Videomaker, Inc., 1994. 47 minutes.

Videography: The Guide to Making Videos. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. Eight 30-minute videos.

Magazines

Digital Imaging. New York: Cygnus Publishing.

Digital Video. USA: Miller Feeman Publications.

New Media.pro. Toronto: Southam Inc.

Video Systems. USA: Interac/Primedia Publication.

VideoMaker. USA: VideoMaker Inc.

Websites

Digital Imaging Magazine – <http://www.digitalimagingmag.com>

A good source of digital video/editing online articles, links to user groups, and equipment information.

Digital Video Magazine – <http://www.dv.com>

New Media.pro Magazine – <http://www.newmediapromagazine.com>

A good Canadian source of digital video/editing online articles, links to user groups, and equipment information.

Videomaker Magazine – <http://www.videomaker.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Videonics Systems – <http://www.videonics.com>

Articles on video/editing, links to user groups, industry information, and equipment information.

Video Systems Magazine – <http://www.videosystems.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Appendix 2.3.1

Inside the Video Camera Research Assignment

Using all available resources, students research the basic technical aspects of how a video camera operates. (*Answers in italics*)

1. What is the main function of the video camera?
 - *The camera converts an optical image into electrical signals that are reconverted by a receiver into visible screen images.*
2. What are the three basic elements of the video camera? Explain the function of each element.
 - *The lens determines what the camera sees.*
 - *The camera contains a beam splitter and an imaging device that converts the image into an electrical signal.*
 - *The viewfinder reconverts the electrical signals into video images of what the lens sees.*
3. Explain the function of the Beam Splitter.
 - *The beam splitter consists of a series of prisms and filters that separate the incoming white light into three primary colours: red, green and blue. The three colours are then directed into their corresponding imaging devices for processing.*
4. Explain the function of the Imaging Device.
 - *The imaging device changes light into electrical energy. This device is a CCD or charged-coupled device. The device is a silicon chip that contains rows of light-sensing pixels. Each pixel translates the light energy it receives into a corresponding electric current. The final electrical currents are processed into a video signal that can be seen in the viewfinder and exported to videotape or other recording medium.*
5. Define a standard Camera Chain found in a production studio.
 - *A camera chain consists of the camera, the power supply, the sync generator and the camera control unit. The power supply provides electrical power for the camera. The sync generator produces uniform electrical pluses that are necessary to synchronize the scanning of the video pictures. The camera control unit contains controls that allow an operator to monitor and adjust the quality of the video images.*
6. What is an ENG/EFP Camera?
 - *The ENG/EFP camera or electronic news gathering/electronic field production camera is portable and designed to be operated by a single operator. This camera contains the whole camera chain in the camera itself.*

Appendix 2.3.2

Storage Mediums

Video Recording Methods

Videotape is like audiotape in its makeup. It consists of a plastic backing coated with a permanent layer of metal particles embedded in a resin base. These particles are capable of holding a magnetic charge. All videotape formats use heads that travel across the surface of the tape and leave magnetic tracks in the tape's coating corresponding to the video signal.

In order to record the high frequencies present with video, the tape must be moving and the heads themselves must spin over the surface of the tape. In a Video Cassette Recorder (VCR) this spins at high-speeds while the videotape moves across the spinning surface.

The scanning process is reversed when the tape is played back. The magnetic tracks left on the tape bring magnetic changes in the video heads, which are then converted into voltages. These are amplified before being passed on to various pieces of video equipment.

Disc-Based Recording

DVD

Although Digital Video Discs (DVDs) resemble an audio Compact Disc (CD), they are capable of holding up to 17 gigabyte (GB) of data. To achieve capacities up to this level, two innovations have been added to the approach used in making standard audio CDs: data is recorded on two surface levels and both sides of the disc are used. The chart below compares standard audio CD's with several versions of DVDs.

Recording Technique	Audio CD	DVD
Single-sided, single layer	0.74GB	4.7GB
Single-sided, double layer	—	8.5GB
Double-sided, single layer	—	9.4GB
Double-sided, double layer	—	17GB

To create the greater data capacity associated with DVDs, a shorter wavelength laser is used with Moving Picture Expert Group-2 (MPEG-2), compression designed for full-motion video. Audio can be recorded with any one of three formats. For most films the Dolby 5.1 system associated with Digital Television/High Definition Television (DTV/HDTV) is utilized.

Compressed video is almost as good as the original signal. By compressing signals more data can be recorded in the same space and transmitted quicker. The data compression techniques used mean that more than two hours of video is stored on a DVD and CD-quality audio. Video resolution runs to 450 lines, which is better than Video Home System (VHS) tapes or laserdiscs.

Both the spiral tracks on the disc's surface and the digital notches are microscopic and DVD equipment requires a high level of precision.

Consumer DVDs offer two versions of a movie, one in a 4:3 ratio and one in a wide-screen ratio. They also include multiple-languages, menus, and interactive features. All this is possible because of data compression.

DVDs are cheaper than VHS tapes. DVDs allow for random-access while VHS tapes are totally linear. On a DVD it is possible to forward to any spot in a video. No rewinding process is involved. DVDs are compatible with standard audio CDs, allowing audio CDs to be played on a DVD player. Most DVD devices are not recordable; however some of the newest devices, e.g., Digital Video Disc-Rewritable (DVD-RW), are rewritable.

Appendix 2.3.2 (Continued)

Disc-Based Camcorders

Once video and audio segments are recorded the segments can be played back instantly and in any order. By programming the order and duration of segments, basic editing can take place right in the camera and the images can be played back or broadcast right from the camcorder.

Video Servers

Video servers (called media servers and file servers) store audio and video information on high-capacity disks.

Material that has been digitized and stored in this form can be accessed almost instantly. A final-edited product can be electronically assembled directly from raw video footage. Video servers are useful in news gathering when segments can be edited and broadcast from the server. The footage stored on the server can later be edited for a completely different newscast. The video server is a high-capacity cache of audio and video pieces that are easily accessed and edited in the production facility.

Appendix 2.3.3

Production Tips

Production tips are provided to help teachers and students recognize areas that may require particular attention.

- All cameras need to be white balanced under common conditions.
- Use the best available tape medium for the equipment being used.
- Ensure all cameras on tripods are level and secure.
- Lay out cables and tape them securely to the ground (if using a fixed camera position in the production).
- If possible, monitor each video camera with a separate monitor.
- If possible, monitor the video signal during the recording for aesthetic qualities. Look for colour balance, balanced composition, sharp focus where applicable, camera movements that are smooth and appropriate to the audio portion of the performance, camera angles that enhance the audio and add interest and visual experience.
- Check all video signals for electrical interference, distortions, etc.
- Monitor the performers during rehearsals for movements or habits that adversely influence the videotaping possibilities or final quality of the video.
- Clearly label all video equipment lines and controls on any mixers or other switching equipment.

Activity 2.4: Production for the Recording of a Live Performance

Time: 4 hours

Description

This activity applies specifically to those locations that have access to equipment that will allow them to employ a multiple-camera and multiple video tape recorder (VTR) approach to recording the live performance. Three different approaches are discussed in Appendix 2.4.1 – Three Approaches to Videotape Production. Students review technical information with respect to the available recording equipment, its use, and power and signal cables. Students complete planning forms and information sheets and use the information to determine the best possible strategies to employ in order to videotape the performance with the available equipment. Throughout the activity, cooperative work strategies and video content reflect the moral and ethical philosophy of the gospel values.

Strand(s) & Learning Expectations

Ontario Catholic School Graduate Expectations

CGE1d - develops attitudes and values founded on Catholic social teaching and acts to promote social responsibility, human solidarity, and the common good;

CGE2a - listens actively and critically to understand and learn in light of gospel values;

CGE2b - reads, understands, and uses written materials effectively;

CGE2c - presents information and ideas clearly and honestly and with sensitivity to others;

CGE2d - writes and speaks fluently one or both of Canada's official languages;

CGE3b - creates, adapts, and evaluates new ideas in light of the common good;

CGE3c - thinks reflectively and creatively to evaluate situations and solve problems;

CGE3d - makes decisions in light of gospel values with an informed moral conscience;

CGE3e - adopts a holistic approach to life by integrating learning from various subject areas and experience;

CGE4b - demonstrates flexibility and adaptability;

CGE4d - responds to, manages, and constructively influences change in a discerning manner;

CGE4e - sets appropriate goals and priorities in school, work, and personal life;

CGE4f - applies effective communication, decision-making, problem-solving, time and resource management skills;

CGE5a - works effectively as an interdependent team member;

CGE5b - thinks critically about the meaning and purpose of work;

CGE5e - respects the rights, responsibilities and contributions of self and others;

CGE5f - exercises Christian leadership in the achievement of individual and group goals;

CGE5g - achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others;

CGE7a - acts morally and legally as a person formed in Catholic traditions;

CGE7b - accepts accountability for one's own actions;

CGE7j - contributes to the common good.

Strand(s): Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

SPV.03 - organize and maintain complex communications systems;

SPV.05 - use mathematics and language skills and apply scientific principles to design and set up communications systems and production processes for electronic, live, recorded, or graphic communications projects.

Specific Expectations

SP1.01 - analyse and demonstrate the interpersonal and group skills required to work as part of a team;
SP2.01 - operate and control devices effectively in communications technology projects;
SP2.02 - use industry standard specific gauges and meters to monitor, test, and modify project requirements;
SP2.04 - select appropriate computer software and production techniques to complete projects;
SP2.05 - connect digital and analog systems to process signals;
SP2.06 - troubleshoot components of communications systems;
SP2.07 - set up and operate the components and systems required to create and modify environments for communications productions (e.g., a live production studio, desktop publishing configurations, websites, test labs);
SP4.02 - develop the technical vocabulary used in electronic, live, recorded, or graphic communications;
IC2.01 - use safe work practices and model the most appropriate ways of accomplishing specific operations.

Prior Knowledge & Skills

- A basic understanding of video editing equipment and its functions acquired in Grade 11 Communications Technology TGJ3M.

Planning Notes

- All student work must contain positive images of race, gender, and religion. Stereotypes, acts of violence, sexual themes or use of profanity in student work are unacceptable.
- Complete an inventory of all available camera/video equipment is necessary before students begin to record the production.
- Inspect cameras, VTRs, switching equipment, power sources and cabling to confirm their safe and efficient operating state.
- The teacher may invite a guest speaker from a local audio/visual production company to lend insight into production processes and real-world contexts.
- The teacher may acquire videos from equipment suppliers on the subject of video recording principles and practices.

Teaching/Learning Strategies

- Throughout the activity encourage attitudes and values founded on Catholic social teachings, which promote social responsibility, human solidarity and the common good.
- Distribute relevant background material and assignment sheets as well as evaluation forms.
- During production rehearsals students keep a daily log sheet, recording brief notes of their accomplishments each day and outlining any future needs that this activity may require.
- Conduct lessons on video recording media.
- Review equipment controls and functions of the available equipment.
- For further instruction, invite a guest speaker to talk to the students or show relevant sections of instructional videos (see Video Resources).
- Students investigate and write a report on the multiple-camera and multiple-VTR approach to recording the live performance.
- Students identify the different roles of control room personnel in order to videotape the performance.
- Students investigate the location where they will be recording in order to plan for the sorts of situations that they will encounter as they videotape the performance.
- The students rehearse camera operations, audio setup and lighting cues for the performance.
- After the research and the practice assignments are complete, students demonstrate their skills and knowledge by recording the musical performance to videotape.

- Offer students guidance and direct instruction in equipment use as they match compositional or thematic concerns with recording operations.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Categories
Research and Theory	Anecdotal Comments Class Discussion	Formative	Knowledge/Understanding Communication
Quiz	Marking Scheme	Summative	Knowledge/Understanding Thinking/Inquiry
Video Production	Checklist Conferencing Marking Scheme	Formative and Summative	Knowledge/Understanding Thinking/Inquiry Communication Application

Resources

The equipment and tools required to complete the activity include cameras, VTRs, switching equipment, power sources, and necessary cabling.

General

Samples of student work
 Manufacturer's equipment manuals
 Software manuals

Books

Alkin, Glyn. *Sound Recording and Reproduction*. London: Focal Press, 1994.

Bermingham, Alan, et al. *The Video Studio*. London: Focal Press, 1994.

Hitchcock, Peter. *Videography: The Guide to Making Videos*. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. ISBN 0-9696261-0-X

Hone, Rick and Liz Flynn. *Video in Focus: A Guide to Viewing and Producing Video*. Toronto: Globe/Modern Curriculum Press, 1992. ISBN 0-888996-344-4

Hone, Rick and Liz Flynn. *Video in Focus: A Guide to Viewing and Producing Video, Teacher's Guide*. Toronto: Globe/Modern Curriculum Press, 1992. ISBN 0-888996-281-2

Katz, Steven. *Film Directing – Shot by Shot*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-10-8

Kyker, Keith and Christopher Curchy. *Television Production: A Classroom Approach*. USA: Librairies Unlimited, 1993. ISBN 1-56308-101-6

Millerson, Gerald. *Video Camera Techniques*. London: Focal Press, 1994.

Stanaway, Jim. *A Beginner's Guide to Video Communications*. Chicago, NTC Publishing, 1997. ISBN 0-8442-5998-5

Utz, Peter. *Today's Video, Equipment, Setup and Production*. USA: Prentice-Hall, 1992. ISBN 0-13925033-6

Vineyard, Jeremy. *Setting Up Your Shots*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-74-4

Wiese, Michael. *The Independent Film & Videomaker's Guide*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-57-4

Wurtzel, Alan. *Television Production*. Toronto: McGraw-Hill, 1989.

Zettl, Herbert. *Video Basics*. Toronto: Nelson Canada, 1995.

Videos

Various samples of instructional videos collected by the individual teacher.

Commercial Mania: Highlights from the Weirdest, Wackiest, Wildest Commercials of the 50's and 60's. California: Rhino Video, 1987. 30 minutes. RNVD 902

Basic Shooting. USA: Videomaker, Inc., 1994. 42 minutes.

Video Editing. USA: Videomaker, Inc., 1994. 47 minutes.

Videography: The Guide to Making Videos. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. Eight 30-minute videos.

Magazines

Digital Imaging. New York: Cygnus Publishing.

Digital Video. USA: Miller Feeman Publications.

New Media.pro. Toronto: Southam Inc.

Video Systems. USA: Interac/Primedia Publication.

VideoMaker. USA: VideoMaker Inc.

Websites

Digital Imaging Magazine – <http://www.digitalimagingmag.com> A good source of digital video/editing online articles, links to user groups, and equipment information.

Digital Video Magazine – <http://www.dv.com>

New Media.pro Magazine – <http://www.newmediapromagazine.com>

A good Canadian source of digital video/editing online articles, links to user groups, and equipment information.

Videomaker Magazine – <http://www.videomaker.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Videonics Systems – <http://www.videonics.com>

Articles on video/editing, links to user groups, industry information, and equipment information.

Video Systems Magazine – <http://www.videosystems.com>

A good source of video/editing online articles, links to user groups, and equipment information

Appendix 2.4.1

Three Approaches to Videotape Production

Live-on-tape or Segments

In this approach, the entire program is broken down into relatively short scenes or segments. Each segment is recorded by multiple cameras and the director switches between cameras from the control room. There is usually very little postproduction editing in this type of production.

Recording with a Single Camera and Single VTR

A single camera shoots the performance from start to finish. The cameraperson shoots the performance in several different approaches, and then the various tapes are edited down to a final copy. This approach requires detailed planning and can cause difficulty in synchronizing sound (as is necessary in a music video). If synchronizing sound is not a concern (i.e., the videotape will have an audio track added later) this is not a problem. This approach works well for music videos without a performance component.

Recording with Multiple Camera and Multiple VTRs

This approach uses two or more cameras connected to their own VTRs. Each VTR records everything its camera sees. The result is simultaneous footage of the performance from a variety of camera angles and positions. With the addition of a master VTR, signals from the individual VTRs are switched during the performance to create a master tape. Using the master tape and the tapes from each camera, the sounds and images are edited into a final master that includes titles and other graphics.

Activity 2.5: Analogue or Digital Editing

Time: 8 hours

Description

This activity applies specifically to those locations that have access to either analogue or digital editing equipment. In this activity students edit the final recorded images and sound of the live performance. Different editing approaches are discussed in Appendix 2.5.1 – Methods of Editing. Students review technical information with respect to the available editing equipment and its use. Students complete the appropriate planning forms and information and use the information to determine the best possible strategies to employ in order to edit the videotaped performance with the available editing equipment. Critical evaluation and problem solving help students make decisions in light of gospel values with an informed moral conscience.

Strand(s) & Learning Expectations

Ontario Catholic School Graduate Expectations

CGE1d - develops attitudes and values founded on Catholic social teaching and acts to promote social responsibility, human solidarity, and the common good;

CGE2a - listens actively and critically to understand and learn in light of gospel values;

CGE2b - reads, understands, and uses written materials effectively;

CGE2c - presents information and ideas clearly and honestly and with sensitivity to others;

CGE2d - writes and speaks fluently one or both of Canada's official languages;

CGE2e - uses and integrates the Catholic faith tradition, in critical analysis of the arts, media, technology and information systems to enhance the quality of life;

CGE3b - creates, adapts, and evaluates new ideas in light of the common good;

CGE3c - thinks reflectively and creatively to evaluate situations and solve problems;

CGE3d - makes decisions in light of gospel values with an informed moral conscience;

CGE3e - adopts a holistic approach to life by integrating learning from various subject areas and experience;

CGE4b - demonstrates flexibility and adaptability;

CGE4d - responds to, manages, and constructively influences change in a discerning manner;

CGE4e - sets appropriate goals and priorities in school, work, and personal life;

CGE4f - applies effective communication, decision-making, problem-solving, time and resource management skills;

CGE5a - works effectively as an interdependent team member;

CGE5b - thinks critically about the meaning and purpose of work;

CGE5e - respects the rights, responsibilities and contributions of self and others;

CGE5f - exercises Christian leadership in the achievement of individual and group goals;

CGE5g - achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others;

CGE7a - acts morally and legally as a person formed in Catholic traditions;

CGE7b - accepts accountability for one's own actions;

CGE7j - contributes to the common good.

Strand(s): Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

SPV.02 - select and safely use the appropriate technologies and resources to solve problems in electronic, live, recorded, or graphic communications technology.

Specific Expectations

- SP2.01 - operate and control devices effectively in communications technology projects;
- SP2.02 - use industry standard specific gauges and meters to monitor, test and modify project requirements;
- SP2.03 - integrate various current communications technologies in their solutions;
- SP2.04 - select appropriate computer software and production techniques to complete projects;
- SP3.02 - use software programs to document the project planning and production process;
- SP4.02 - develop the technical vocabulary used in electronic, live, recorded or graphic communications.

Prior Knowledge & Skills

- A basic understanding of video editing equipment and its functions acquired in Grade 11 Communications Technology TGJ3M.

Planning Notes

- Complete an inventory of all available video-editing equipment before students begin to edit the production.
- Inspect all video-editing equipment and computer equipment to confirm they are safe and in operating condition.
- The teacher may invite a guest speaker from a local audio/visual production company to lend insight into production processes and real-world contexts.
- The teacher may acquire videos resources that deal more generally with postproduction techniques (see Video and Online Resources).

Teaching/Learning Strategies

- Throughout the activity, encourage attitudes and values founded on Catholic social teachings, which promote social responsibility, human solidarity, and the common good.
- During production students keep a daily log sheet, recording brief notes of their accomplishments each day and outlining any future needs that this activity may require.
- Distribute relevant background material and assignment sheets as well as evaluation forms.
- Conduct lessons on analogue and digital video editing, focusing on the techniques required for use of the available equipment.
- Review editing controls and functions of the available equipment and protocols for effective production (see Appendix 2.5.1 – Methods of Editing).
- For further instruction, invite a guest speaker to talk to the students or show relevant sections of instructional videos (see Video Resources). The teacher may also have students view selected portions of the instructional video/online resources that accompany editing equipment.
- Students visualize and plan for the finished editing process. They log the videotapes to be used, prepare tapes for editing, check for sound levels, setup titles and other graphics, create time code, book-editing time, etc.
- Students practise editing operations with respect to audio and video signals in either analogue or digital format.
- After the research portion of the activity and the practice segments are complete, students demonstrate their skills and knowledge by editing the musical performance in an analogue or digital format.
- Offer guidance and direct instruction in equipment use as students match compositional or thematic concerns with editing operations.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Category
Research and Theory	Anecdotal Comments Class Discussion	Formative	Knowledge/Understanding Communication
Quiz	Marking Scheme	Formative	Knowledge/Understanding Thinking/Inquiry
Video Editing	Checklist Conferencing Marking Scheme	Summative	Knowledge/Understanding Thinking/Inquiry Communication Application

Resources

Resources required to produce the audio-video production unit may include video cameras, lighting equipment, microphones, editing hardware and software, sound mixing equipment and necessary cabling. The equipment and tools required to complete the activity include video-editing equipment and computer equipment.

General

Samples of student work
Manufacturer's equipment manuals
Software manuals and tutorial exercises

Books

Alkin, Glyn. *Sound Recording and Reproduction*. London: Focal Press, 1994.

Birmingham, Alan, et al. *The Video Studio*. London: Focal Press, 1994.

Hitchcock, Peter. *Videography: The Guide to Making Videos*. Toronto: Peter Hitchcock Productions Inc. and TV Ontario, 1992. ISBN 0-9696261-0-X

Hone, Rick and Liz Flynn. *Video in Focus: A Guide to Viewing and Producing Video, Teacher's Guide*. Toronto: Globe/Modern Curriculum Press, 1992. ISBN 0-888996-281-2

Kyker, Keith and Christopher Curchy. *Television Production: A Classroom Approach*. USA: Librairies Unlimited, 1993. ISBN 1-56308-101-6

Stanaway, Jim. *A Beginner's Guide to Video Communications*. Chicago, NTC Publishing, 1997. ISBN 0-8442-5998-5

Utz, Peter. *Today's Video, Equipment, Setup and Production*. USA: Prentice-Hall, 1992. ISBN 0-13925033-6

Vineyard, Jeremy. *Setting Up Your Shots*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-74-4

Wiese, Michael. *The Independent Film & Videomaker's Guide*. USA: Michael Wiese Productions, 2000. ISBN 0-941188-57-4

Wurtzel, Alan. *Television Production*. Toronto: McGraw-Hill, 1989.

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New Media.pro Magazine – <http://www.newmediapromagazine.com>

A good Canadian source of digital video/editing online articles, links to user groups, and equipment information.

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Videonics Systems – <http://www.videonics.com>

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Video Systems Magazine – <http://www.videosystems.com>

A good source of video/editing online articles, links to user groups, and equipment information.

Appendix 2.5.1

Methods of Editing

Analogue Editing

Analogue or linear editing systems require edits to be made in a linear fashion; i.e., in a 1-2-3 sequence. In a typical project this would mean that editing begins in the countdown leader, followed by scene one, followed by scene two, etc. The material must be well organized before starting editing because changes are difficult to make once committed to tape.

The idea behind linear editing is simple: one or more tapes containing the original footage are recorded sequence by sequence onto a second tape. The sequences can be shortened and rearranged, bad shots removed and audio or video effects added. The source machine(s) contain the original footage and the edit recorder, which is controlled by an edit controller, is used to record the final edited master. The editor uses an edit controller to shuttle tapes back and forth to find the beginning and ending reference points of each sequence.

The reference points are entered as control track indicators or time code numbers. The edit controller uses the precise beginning and ending points to roll and cue the tapes and make each edit.

In linear editing systems the in-and-out points are referenced by pulses recorded on the tape (i.e., 30 per second). The method of editing that locates and marks segments based on a count of control track pulses is referred to as control track editing.

Control track editing has two disadvantages. It relies on equipment to maintain an accurate count of thousands of control track pulses, and during editing the tapes are constantly moved forward and backward at different speeds as points are marked in and out for each edit. When equipment loses count for a fraction of a second, an edit point will end up being displaced by several frames. This destroys a well-planned edit. If the counter freezes for a fraction of a second when the tape is travelling, the equipment will lose its accurate count of control pulses.

The second disadvantage of control track editing relates to the editor's ability to make adjustments to original edit decisions at a later time. As the control track count is kept in the volatile memory of computer chips, when the machine is turned off or reset, all edit information is lost.

Counter references on control track editing systems are "relative" (i.e., to where the counter has started) and are not "absolute" (i.e., recorded on the tape itself). The only way to insure accuracy occurs when exact locations become permanent information on the tape.

Simple control track editing has a number of disadvantages. However, it remains the quickest way to edit a video project.

Linear time-code editors have made important advances. Compared to nonlinear systems, the linear approach is still the fastest and most direct way of doing certain types of editing.

Appendix 2.5.1 (Continued)

Insert and Assemble Editing

There are two types of edits that can be made in linear editing. During assemble editing, video and audio segments can be added, one after another like links on a chain, complete with the associated control track. Insert editing requires an extra step; a stable control track must first be recorded over the entire area of the edited master tape you plan to use.

During editing the desired video and audio segments are inserted over the pre-recorded control track. Within the time constraints of whatever audio and video has been recorded on the edited master, it's also possible to insert new video and audio segments at a later time. It's not possible, however, to lengthen or shorten parts of the edited master.

Nonlinear Editing

Nonlinear editing (also called random-access editing) is like working with a word processor; it allows segments to be inserted, deleted, and moved around at any point in the editing process.

In random-access editing the original video segments are transferred to computer hard disks. The editing system can access them in any order, almost instantly.

In nonlinear editing a wide range of special effects can be added, including fades, dissolves, keyed-in words, and colour corrections. Audio enhancements, such as sound effects, can be added. There are dozens of editing programs available, all of them different in their operation and on-screen configuration. Most editing systems use one or more timelines to display the ongoing editing sequence. The various audio and video segments, transitions, special effects, etc. are clicked on and dragged to the timeline.

Non-linear editors have multiple timelines to indicate the simultaneous presence of more than one audio or video source. Background music can be on one timeline, the background sound from the original tape on another, and the voice of a narrator on a third timeline. Non-linear editing software includes a wide range of filters that can be applied (e.g., blur, colour corrections, cropping, fog effects, distortions, etc.).

During non-linear editing the video and audio segments are not permanently recorded, as they are in linear editing. The edit decision sequence exists in computer memory as a series of internal digital markers that tell the computer where to look for things on the hard disk.

This means it is possible to instantly check the editing and make adjustments. It also allows for experimentation with audio and video possibilities. Once finalized, the edited video is saved on the computer disk. The final edited video and audio output can be handled in two ways. It can be "printed" in final, linear form to a videotape, or it can stay on computer disk to be used later.

Servers

Video and audio segments take up a large amount of disk storage space. A mass storage device is called a video or media server. A centralized video gives all of the computer-editing stations the advantage of having access to large amounts of storage, and segments can be reviewed, edited and played back from any editing station. With a high-speed modem permit users can link to a media server from any location and edit.

Unit 3: Illustrated Print Publication

Time: 25 hours

Unit Description

Students apply their understanding of desktop publishing to produce an original illustrated book for print production. This unit expands upon the graphic communications skills developed in the Grade 11 Communications Technology (TGJ3M) course. To prepare information for publishing, students select a theme that reflects a personal interest. Students use the format of a coffee table book and include text and original photographic images. They select a book style to best deliver their theme, generate a variety of design ideas to lay out their theme, create photographic images (35 mm and/or digital), compose text, generate a folded mock-up of the imposition of their book and produce a prototype for print production. Using their mock-up as a guide students determine page layout, apply typographical principles and generate photographic images. Students also create a full-colour cover that enhances the presentation quality of the book. Students select and use a variety of computer hardware and software to create the publication. This unit prepares students for post secondary study in graphic design and communications.

Unit Synopsis Chart

Activity	Time	Learning Expectations	Assessment Categories	Tasks
3.1 Planning Principles and the Techniques of Multi-Page Publications	5 hours	TFV.01, SPV.01, SPV.04, SPV.05 TF1.02, TF3.02, SP1.02, SP1.03, SP3.03	Knowledge/ Understanding Communication Thinking/ Inquiry	Apply the design process to plan personal interest book. Create a mock-up for imposition of the multiple-pages that shows the placement of text and photographs. Write a proposal for publishing approval. Build a page template using desktop publishing software.
3.2 Generating, Manipulating and Enhancing Photographic Images	6 hours	SPV.01, SPV.04, SPV.05 SP1.02, SP1.03, SP3.03	Knowledge/ Understanding Application	Compose and capture photographic images to reflect personal book theme. Convert photographic images to digital format. Apply photo-editing techniques to enhance photographic images using vector-based software program. Crop photographic images to fit page parameters.
3.3 Page Input, Editing and Output (Desktop Publishing)	6 hours	SPV.03 SP1.02, SP1.03, SP3.03	Knowledge/ Understanding Application	Select appropriate type style and size. Integrate text and photographs on the pages according to the mock-up layout. Perform text editing. Add page numbers. Output pages.

Activity	Time	Learning Expectations	Assessment Categories	Tasks
3.4 Cover Production and Book Binding Techniques	8 hours	ICV.02 SP2.03, SP2.04, SP3.01, IC2.01, IC2.05	Knowledge/ Understanding Thinking/ Inquiry Communication Application	Design a full-colour cover that enhances the presentation. Bind pages to the cover.

Activity 3.1: Planning Principles and the Techniques of Multi-page Publications

Time: 5 hours

Description

Students apply the design process to plan an original book on a subject of personal interest to them. They create a mock-up for imposition showing the placement of text and photographs. They select appropriate typography to complement their subject photographic treatment. Using desktop publishing software, students explore a variety of page templates and then develop their own. Students write a publishing proposal that outlines their original idea and describes the content of their book.

Strand(s) & Learning Expectations

Strand(s): Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

TFV.01 - apply the design process to develop solutions, products, processes, or services in response to complex challenges or problems in electronic, live, recorded, or graphic communications;

SPV.01 - design and plan solutions to problems both individually and as members of a team;

SPV.04 - use industry-recognized standards and formats when developing and recording solutions to problems;

SPV.05 - use mathematics and language skills and apply scientific principles to design and set up communications systems and production processes for electronic, live, recorded or graphic communications projects.

Specific Expectations

TF1.02 - apply the following steps of the design process to solve a variety of complex communications technology challenges or problems:

- identify what has to be accomplished (the problem);
- gather and record information, and establish a plan of procedures;
- brainstorm a list of as many solutions as possible;
- identify the resources required for each suggested solution, and compare each solution to the design criteria, refining and modifying it as required;
- evaluate the solutions (e.g., by testing, modeling and documenting results) and choose the best one;
- produce a drawing, model or prototype of the best solution;
- evaluate the prototype and what is required to produce it;
- communicate the solution, using one or more of the following: final drawings, technical reports, electronic presentations, flow charts, storyboards, mock-ups, prototypes etc.;
- obtain feedback on the final solution and repeat the design process if necessary to refine or improve the solution;

TF3.02 - describe the current guidelines, conventions and rules used in communications design and production;

SP1.02 - develop a production plan for a project from its conception to its completion;

SP1.03 - apply time management skills, including the use of software scheduling and project management software, to meet deadlines when solving problems;

SP3.03 - use appropriate graphics formats in pre-production documents and drawings.

Prior Knowledge & Skills

- An understanding of graphic concepts and processes acquired in Grade 11 Communications Technology TGJ3M.

Planning Notes

- The activities in this unit are linked and build upon knowledge and skills in a progressive manner.
- A complete inventory of the available desktop publishing and peripheral equipment must be done before students begin to plan their publication. Students should be made aware of the potential and limitations of the available equipment.
- Itemize the criteria for size and length of publication based upon the available equipment and resources.
- Collect examples of coffee table books and samples of publishing proposals that clearly describe the elements of a book.
- Prepare examples of a variety of page impositions for students to consider during the design process.
- Prepare a sample mock-up that shows the placement of text and photographs.
- Supply copies of all related information and assignment sheets as well as evaluation criteria and forms.
- Cross-curricular opportunities with English should be explored.

Teaching/Learning Strategies

- This activity provides students with opportunities to demonstrate initiative and creativity through the application of the design process.
- Students keep a daily log sheet, recording brief notes of their accomplishments each day and outlining any future needs that this activity may require.
- Students view examples of coffee table books and discuss the technical knowledge and skills necessary to meet the complex planning challenge required to publish a printing project.
- To help students achieve the best results, stress the design objectives and the design parameters of their publication.
- Provide an overview of the graphic technologies and processes (e.g., printing methods) prevalent in the publishing industry.
- The logistics of sharing input and output devices (computers and printers) is addressed.
- Show a few sample publishing proposals that clearly describe the elements of a book.
- Review the requirements of the written proposal. The proposal outlines the theme of the student's original idea and describes the content of the book. It should be persuasive in tone and professional in appearance. Students are encouraged to produce an original and fresh publication for the marketplace. The mock-up complements the written proposal by providing a general layout depicting the theme.

The following items should be present in the written outline:

- a theme that is original and well-described;
- a page-by-page description of the textual and photographic content;
- a description of the layout and treatment of the elements of each page.

The following items should be present in the mock-up:

- a page-by-page general layout of the text and photographs;
- a sketch of the page borders, headers, footers;
- a mock-up that is made to size;
- an achievable number of pages (given the time frame for this unit);
- a sketched cover.
- Students prepare a written proposal that outlines the book theme and clearly explains the value of their idea. The proposal should be addressed to a publisher.
- Show examples of a variety of page impositions for students to consider using for their publication, as well as a sample mock-up that shows the placement of text and photographs.
- Provide students with guidance and direct instruction about the use of desktop publishing equipment, peripheral hardware, and desktop publishing and photo editing software. Software tutorial exercises are an option at this point.
- Demonstrate how to build a page template using desktop publishing software.
- Discuss pictorial images and how they are to be used within the publication.
- Discuss the characteristics of good photographic images and technologies inherent in their making, and help students plan a photo-shooting session to capture the necessary images to be included in their production.
- Students create a folded mock-up of their design idea. The mock-up shows the general page contents, the textual and photographic information on each page, and the page sequence from cover to cover.
- The proposal is submitted with the page mock-up for teacher feedback.
- Cultural diversity may be addressed by encouraging students to discover different techniques and approaches applied to book publishing.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Categories
Written Proposal of Book Theme and Mock-up	Proposal and Mock-up Outline	Formative	Knowledge/Understanding Communication

Resources

The equipment and tools required to complete the activity include digital and/or 35 mm camera, lighting equipment, computers and a colour printer, Internet access for research, image-editing and page layout software, a scanner, mechanical drawing and illustration tools.

Books

Adobe Creative Team. *Official Adobe Print Publishing Guide*, 2nd Edition. USA: Adobe Press, 2002. ISBN 0201700131

Barden, Robert and Michael Hacker. *Communication Technology*. Canada: Nelson Canada, 1990. ISBN 0-8273-3225-4

Broekhuizen, Richard. *Graphic Communications*. USA: Glencoe Macmillan/McGraw-Hill, 1995. ISBN 0-02-676305-2

Jensen, C. and F. Mason. *Fundamentals of Engineering Graphics, SI Metric*. Canada: McGraw Hill Ryerson Ltd., 1988. ISBN 0-07-549209-1

Johnson, Charles. *Communication Systems*. USA: Goodheart-Wilcox Co., Inc., 1992. ISBN 0-87006-961-6

Karsnitz, John. *Graphic Arts Technology*. USA: Delmar Publishers Inc., 1984. ISBN 0-8273-1828-6

Purst, Zeke. *Graphic Communication, The Printed Image*. USA: Goodheart-Wilcox Co., Inc., 1989. ISBN 0-87006-961-6

Websites

Desktop Publishing – <http://www.desktoppublishing.com/linkus.html>

Desktop publishing

Graphic Arts Technical Foundation – <http://www.gatf.org>

Contains educational information on the graphic arts and helpful links to graphic utilities

Activity 2: Generating, Manipulating, and Enhancing Photographic Images

Time: 6 hours

Description

Students compose and capture photographic images to reflect their book theme. They apply photographic composition and lighting skills to capture images to be used in their publication with either 35mm or digital cameras. They convert photo images to digital format and apply photo-editing techniques that enhance photographic images. Students process their photographic images to fit both their design concept and page parameters. The digital images are stored and prepared for import into a desktop publishing program.

Strand(s) & Learning Expectations

Strand(s): Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

SPV.01 - design and plan solutions to problems both individually and as members of a team;

SPV.04 - use industry-recognized standards and formats when developing and recording solutions to problems;

SPV.05 - use mathematics and language skills and apply scientific principles to design and set up communications systems and production processes for electronic, live, recorded, or graphic communications projects.

Specific Expectations

SP1.02 - develop a production plan for a project from its conception to its completion;

SP1.03 - apply time management skills, including the use of software scheduling and project management software, to meet deadlines when solving problems;

SP3.03 - use appropriate graphics formats in pre-production documents and drawings.

Prior Knowledge & Skills

- Basic computer skills, such as text manipulation and file management.
- Experience in composing and capturing photographic images.
- Experience in photo editing.

Planning Notes

- In this activity, students apply the principles of photography to capture images for their publication.
- Prepare exemplars demonstrating how to achieve a variety of photographs from landscapes to portraits.
- Cross-curricular opportunities with Visual Arts should be explored.
- 35-mm images may be processed commercially where film-processing facilities are not available.

Teaching/Learning Strategies

- This activity incorporates a variety of learning strategies such as teacher-led discussion, independent problem solving, cooperation, communication, time management, and brainstorming new ideas.
- Discuss the purposes and methodologies of the photographic process.
- Instruct students on how to use light effectively and how to compose the photographic scenes correctly.
- Review natural light, studio lighting, and backdrops.
- Using exemplars, demonstrate how to achieve a variety of photographs from landscapes to portraits.
- Demonstrate the steps required to complete the task.
- Students keep a list of photographic images to ensure a good inventory from which to choose.
- Demonstrate how 35-mm photographs are scanned, formatted, and saved to be available for importing into a desktop publishing software program.
- Discuss the logistics of sharing input and output devices (computers and printers).
- Review and provide direct instruction in the process of editing photographic images using image-editing software.
- Students work independently to produce their finished photographs, consulting with peers and teachers for input.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Categories
The Photographic Process	Question Sheet	Formative	Knowledge/Understanding
Digital Conversion of Photographic Images	Checklist	Formative	Thinking/Inquiry Application
Image-editing	Rubric	Summative	Thinking/Inquiry Application

Resources

The equipment and tools required to complete the activity include digital and 35 mm cameras, lighting equipment, computers and a colour printer, image-editing software and a scanner.

Books

Software and equipment instruction manuals.

Barden, Robert and Michael Hacker. *Communication Technology*. Canada: Nelson Canada, 1990. ISBN 0-8273-3225-4

Brainerd, T. *Graphic Design - Letterhead and Logo Design*. USA: Rockport Publisher, 1998. ISBN 0-15649-6618-6

Broekhuizen, Richard. *Graphic Communications*. USA: Glencoe Macmillan/McGraw-Hill, 1995. ISBN 0-02-676305-2

Cloghessy, Florence, John Ritz, and Richard Seymour. *Exploring Communication*. USA: Goodheart-Wilcox Co., Inc., 2000. Text ISBN 1-56637-678-5, Student Activity Manual ISBN 1-56637-679-3, Instructor's Manual ISBN 1-56637-680-7

Heller, S. and T. Fernandes. *Becoming a Graphic Designer: A Guide to Careers in Design*. USA: Wiley, John and Sons, 1999. ISBN 04712990

Johnson, Charles. *Communication Systems*. USA: Goodheart-Wilcox Co., Inc., 1992.
ISBN 0-87006-961-6

Karsnitz, John. *Graphic Arts Technology*. USA: Delmar Publishers Inc., 1984.
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Purst, Zeke. *Graphic Communication, The Printed Image*. USA: Goodheart-Wilcox Co., Inc., 1989.
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Contains information about Adobe Photoshop

Computer Arts Magazine Online – www.computerarts.co.uk

Graphic and electronic tips, techniques, and tutorials

Corel Corporation website – <http://www.corel.com/index.htm>

Contains information about CorelDraw

Desktop publishing – <http://www.desktoppublishing.com/linkus.html>

Graphic Arts Technical Foundation – <http://www.gatf.org>

Contains educational information on the graphic arts and helpful links to graphic utilities

Graphic Designers' Paradise – <http://desktoppublishing.com/design.html>

Contains information and advice for graphic designers

Activity 3: Page Input, Editing, and Output (Desktop publishing)

Time: 6 hours

Description

In this activity students compose and input a manuscript using desktop publishing software. They select appropriate typefaces and styles and integrate text and photographs on the pages according to their mock-up. Students perform text editing, add page numbers, and output pages.

Strand(s) & Learning Expectations

Strand(s): Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

SPV.03 - organize and maintain complex communications systems.

Specific Expectations

SP1.02 - develop a production plan for a project from its conception to its completion;

SP1.03 - apply time management skills, including the use of software scheduling and project management software, to meet deadlines when solving problems;

SP3.03 - use appropriate graphics formats in pre-production documents and drawings.

Prior Knowledge & Skills

- Prior knowledge of the manipulation, acquisition, and management of graphic resources such as photographs, illustrations and typography.
- Ability to use various graphics applications (image editing and page layout) to produce and organize files adhering to standards used in commercial reproduction.

Planning Notes

- Gather a variety of commercially-prepared desktop publishing projects as examples of the potential outputs available.
- Prepare an example of the relationship between a mock-up and a printed section of the book.
- Explore cross-curricular opportunities with English.

Teaching/Learning Strategies

- Students are instructed to check spelling and grammar of their manuscript.
- Describe the means and objectives of the publishing components.
- Explain the production of a page using electronic publishing methods and indicate the similarities to traditional paste-up methods.
- Present an example of how to input the manuscript, select type style and size, and import and integrate photo-images on to a page using desktop publishing software.
- Discuss the logistics of sharing input and output devices (computers and printers).
- The use of the mock-up as a guide must be stressed. It must be followed (especially when working on multiple pages that are not in sequence) to ensure that the pages are in order once the sheet is folded. To illustrate the importance of adhering to the mock-up, the teacher provides and discusses an example of the relationship between a mock-up and a printed section of the book.
- Students print proof pages for editing purposes. Students work with a peer to carefully check that the information is correct and that it matches the folded mock-up.
- Students edit and save their completed work.
- Students output finished pages using available resources.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Categories
Inputting Information	Checklist	Formative	Knowledge/Understanding
Output of Printed Pages	Rubric	Summative	Communication Application

Resources

The following resources are required for this activity:

- a sufficient number of computers to input, design, edit and output the book pages;
- colour printer and/or laser printer;
- acquisition devices such as a scanner and digital camera;
- illustration, image-editing and page layout software.

Books

Software and equipment instruction manuals.

Adobe Creative Team. *Official Adobe Print Publishing Guide, 2nd Edition*. USA: Adobe Press, 2002.
ISBN: 0201700131

Barden, Robert and Michael Hacker. *Communication Technology*. Canada: Nelson Canada, 1990.
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Heller, S. and T. Fernandes. *Becoming a Graphic Designer: A Guide to Careers in Design*. USA: Wiley, John and Sons, 1999. ISBN 04712990

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Purst, Zeke. *Graphic Communication, The Printed Image*. USA: Goodheart-Wilcox Co., Inc., 1989. ISBN 0-87006-961-6

Sanders, M. *Communication Technology - Today and Tomorrow*. USA: Glencoe/McGraw-Hill, 1984. ISBN 0-02-677110-1

Websites

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Contains information and advice for graphic designers

Activity 4: Cover Production and Book Binding Techniques

Time: 5 hours

Description

In this activity students produce a full-colour cover for their book. Applying their knowledge of the design process, students create a book cover that captures the essence of the pages within. Using available resources they determine the best binding method to complete a prototype of their book.

Strand(s) & Learning Expectations

Strand(s): Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

ICV.02 - implement safe work practices when performing communications technology tasks.

Specific Expectations

SP2.03 - integrate various current communications technologies in their solutions;

SP2.04 - select appropriate computer software and production techniques to complete projects;

SP3.01 - develop a personal portfolio to use to document skills in communications technology;

IC2.01 - use safe work practices and model the most appropriate ways of accomplishing specific operations;

IC2.05 - identify the issues addressed in the Workplace Hazardous Materials Information System (WHMIS).

Prior Knowledge & Skills

- A fundamental understanding of graphic concepts acquired in Grade 11 Communications Technology TGJ3M that specifically deal with the manipulation, acquisition and management of graphic resources such as photographs, illustrations and typography.

Planning Notes

- This is the culminating activity for this unit. This activity provides students with opportunities to demonstrate initiative and creativity through the application of the design process by producing full-colour covers for their books.
- Prepare examples of a variety of book cover styles for students to consider using for their publication.
- Supply copies of all related information and assignment sheets, as well as evaluation criteria and forms.

Teaching/Learning Strategies

- Students view examples of coffee table books and discuss the technical knowledge and skills necessary to design an effective cover.
- Provide an overview of book finishing processes prevalent in the publishing industry.
- Discuss the design objectives and the design parameters of their publication and how the cover design is integral in the production process.
- Emphasize the limitations of the available technology to guide student selection of book cover style.
- Provide students with design tips to enhance visual communication when using desktop publishing equipment, peripheral hardware, and desktop publishing and photo-editing software.
- Discuss pictorial images and how they attract reader attention, highlighting how design objects are emphasized through the use of colour and size.
- List impediments to communication such as illegibility, visual noise and lack of organization.
- Describe and demonstrate the use of available software.
- Students complete their covers for their books.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Categories
Book Cover	Rubric	Summative	Knowledge/Understanding Communication
Book Binding	Rubric	Summative	Application

Accommodations

Teachers should consult individual student IEPs for specific direction on accommodation and adapt the activity and teaching strategies to meet the needs of individual students. Students' individual needs may be accommodated through an adjustment (omission or expansion) in the design and layout stages of the project. Design templates for the computer applications can be made available to students at the production stage. Students are encouraged to share their knowledge of computer software and hardware with their peers.

Resources

The equipment and tools required to complete the activity include digital and 35 mm cameras, lighting equipment, computers and a colour printer, Internet access for research, photo-editing, image-editing and page layout software, a scanner, mechanical drawing and illustration tools.

Books

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