

# Business Technology 12

*Guide*

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## Business Technology 12

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# **Business Technology 12**

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# Acknowledgments

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# Contents

## Introduction

Background.....	1
Rationale for Business Technology 12 .....	2
Careers in Business Technology .....	2
LifeWork Portfolio Development .....	2
The Nature of Business Technology 12.....	3
Course Designation.....	3

## Course Design and Components

Features of Business Technology 12 .....	5
Curriculum Components.....	5

## Outcomes

Essential Graduation Learnings and Business Technology 12 .....	7
Business Technology 12 Unifying Concepts.....	9
Specific Curriculum Outcomes.....	9

## Contexts for Learning and Teaching

Principles of Learning.....	11
A Variety of Learning Styles and Needs .....	13
The Senior High School Learning Environment.....	13
Creating Community.....	14
Building the Climate .....	14
Engaging All Students .....	16
Health and Safety.....	17
Meeting the Needs of All Students .....	18
The Role of Technologies.....	19
Vision for the Integration of Information Technologies.....	20

## Modules

Module 1: Advanced Document Processing / Desktop Publishing .....	21
Module 2: Advanced Spreadsheet Applications .....	25
Module 3: Presentation Software.....	31
Module 4: Database Management Systems .....	37
Module 5: Software Integration and Website Exploration/Evaluation.....	41
Module 6: Computer Safety and Emerging Technologies.....	45

## Assessing and Evaluating Student Learning

Assessment in Business Technology 12 .....	51
Effective Assessment and Evaluation Practices.....	52

Involving Students in the Assessment Process.....52  
Portfolios for Assessment.....54  
Tests and Examinations.....55

**Appendices [to be developed]**

Appendices A for Module1 .....  
Appendices B for Module 2 .....  
Appendices C for Module 3 .....  
Appendices D for Module 4 .....  
Appendices E for Module 5.....  
Appendix F: Glossary of Terms .....  
Appendix G: Internet links .....  
Appendix H: Moral, Ethical, and Legal Issues.....

Bibliography .....57

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# Introduction

## Background

As the pace of technological change accelerates, employers' need for workers who are comfortable with technology will continue to grow. Employers need workers who are lifelong learners with a deep understanding of information and communication technology that will enable them to adapt their skills and increase their knowledge in response to changing expectations in the workplace. It is imperative that high school graduates are prepared to continue to expand and develop transferable skills and that they have acquired the employability skills they will need as they prepare to enter the workplace.

The Conference Board of Canada, Canada's most influential independent research institute, monitors the impact of two main forces on management decisions: the external environment (national and global issues and trends) and the internal environment (change in management systems such as strategy, organizational structure, technology, human resource management, and information management). Working with employers across the country, they have identified the most important characteristics required of new employees. Many attributes previously required at the management level are now being considered critical for satisfactory employee performance. All of these employability skills are being incorporated into business education programs.

Because the range of knowledge, skills, and personal abilities developed in business courses is so extensive, the National Business Education Association states that:

“Perhaps no other discipline better enables students to think, make decisions, simulate the real world, and apply academic subject matter than does business education. Students who study business education will have increased opportunities to succeed in whatever field they may choose to pursue.” (National Standards for Business Education, NBEA, 2001, p. 4).

Through the processes involved with the production of business documents, students learn to apply the conventions, practices, principles, and employability skills within the personal and business environments. As the role of technology in communications and business grows, the demand for thoughtful, skilled individuals expands.

Business Technology 12 further provides students with opportunities to investigate the range of careers and employment opportunities that exist in the expanding communications and business sectors, to develop advanced skills and to explore the range of roles and workplaces where the creating of business documents is a core activity.

## Rationale for Business Technology 12

Constant change in our social and economic environments imposes increasing demands on the individual. Most students will experience at least four or five career changes during their working years. They will require flexibility, positive attitudes, strong communication, problem solving, and decision-making skills and aptitudes for lifelong learning. Business education can provide tools they will need to manage their lives and careers.

Employers are looking for graduates who can work independently and collaboratively. They need employees who can work effectively with technology and with people. Employees must know how to use technology comfortably and effectively; they must be able to adapt to rapid and continuous change. Students will benefit from knowledge of technology applications and skills.

## Careers in Business Technology

The study of business technology can lead to a broad range of occupations within Atlantic Canada's growing service sector, and can also be applied across a broad range of other disciplines and occupations, including

- public relations
- tourism and hospitality
- media and communications
- publishing and printing
- medical and dental
- retail
- administrative assistants
- law enforcement
- advertising and marketing
- research
- education
- transportation

## LifeWork Portfolio Development

Many post-secondary institutions expect students seeking to pursue studies in new media to provide an entrance portfolio and to offer additional support to their applications through demonstration of both skills and attitudes aligned with an occupational profile. Indicators may include drawing tests, computer functionality tests, and personality inventories, as well as interviews. A typical entrance portfolio will include a specified number of copies of artwork, digital work, and an essay or rationale statement explaining the student's interest in the discipline. Business Technology 12 provides opportunities for students to collect and articulate their best work as they continue to build LifeWork Portfolios.

Portfolio development helps students to demonstrate their skills and commitment to the study, and helps institutions to meet the students at their current level of skill and interest. The components of the portfolio or pre-admission testing are often dependent on the approach to the subject, whether integrated into an arts program, a technology program, or as a commercial and vocational study. Students will have opportunities to examine admission requirements and the placement of the program within the institution's overall academic offerings to determine the fit with their own career goals.

## The Nature of Business Technology 12

Business Technology 12 provides a context in which students may

- become skilled, critical users of information and communication technology (ICT)
- become aware of and respect ethical, social, and legal implications of document production
- apply the conventions and principles of document production
- construct documents that accurately and effectively communicate information, ideas, and concepts
- become contributing and collaborative members of a work culture

Business Technology 12 consists of six modules:

Module 1: Advanced Document Processing / Desktop Publishing (25–30 hours)

Module 2: Advanced Spreadsheet Applications (20–25 hours)

Module 3: Presentation Software (10–15 hours)

Module 4: Database Management Systems (20–25 hours)

Module 5: Software Integration and Website Exploration/Evaluation (20 hours)

Module 6: Computer Safety and Emerging Technologies (10 hours)

## Course Designation

Business Technology 12 is an academic credit and meets the requirements for a technology credit. The course code for Business Technology 12 is 002358.



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# Course Design and Components

## Features of Business Technology 12

Business Technology 12 is characterized by the following features:

- An emphasis on integrating, applying, and reinforcing the knowledge, skills, and attitudes developed in other courses
- A connection to the Essential Graduation Learnings
- A refining of career-planning skills to explore a wide range of pathways from school
- A relationship to the community and workplace with a focus on using real community and workplace problems and situations as contexts for the application of knowledge and skills and for further learning
- Hands-on, project-based learning experiences
- Development of personal and interpersonal skills required for personal and career success
- Use of technology as an integral part of the course

## Curriculum Components

### Outcomes

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This section provides specific curriculum outcomes related to the unifying concepts. While the outcomes may be clustered, they are not necessarily sequential.

### Suggestions for Assessment

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This section provides suggestions for assessment of achievement of the outcomes. The suggestions are often linked to the Suggestions for Learning and Teaching. The suggestions are only samples; for more information, read the section Assessing and Evaluating Student Learning and see Appendices for sample assessment tools.

### Suggestions for Learning and Teaching

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This section offers a range of strategies from which teachers and students may choose. Suggested learning experiences can be used in various combinations to help students achieve an outcome or outcomes. The suggested strategies may also provide a springboard for teachers to choose other strategies that would be effective for their students. It is not necessary to use all the suggestions that are included, nor is it necessary for all students to be involved in the same learning experience.

## **Notes and Resources**

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This section contains a variety of information related to the items in the other sections, including suggested resources, elaborations on strategies, successes, cautions, and definitions

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# Outcomes

## Essential Graduation Learnings and Business Technology 12

The Atlantic Provinces worked together to identify the abilities and areas of knowledge that they considered essential for students graduating from high school. These are referred to as Essential Graduation Learnings. Details may be found in the document *Public School Programs*. Some examples of learning in Business Technology 12 that help students move toward attainment of the Essential Graduation Learnings are given below.

### Aesthetic Expression

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Graduates will be able to respond with critical awareness to various forms of the arts and be able to express themselves through the arts.

Students will be expected to

- 1.1 create professional looking documents using basic and advanced software features
- 1.2 develop and demonstrate desktop-publishing skills by applying advanced software features
- 5.3 explore and analyze content credibility of websites

### Citizenship

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Graduates will be able to assess social, cultural, economic and environmental interdependence in a local and global context.

Students will be expected to

- 2.3 create and format advanced charts to display information effectively
- 4.3 retrieve and manipulate data to solve problems
- 5.3 explore and analyze content credibility of websites
- 6.3 research emerging technologies

### Communication

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Graduates will be able to use the listening, viewing, speaking, reading, and writing modes of language(s) as well as mathematical and scientific concepts and symbols to think, learn, and communicate effectively.

Students will be expected to

- 1.1 create professional looking documents using basic and advanced software features
- 1.2 develop and demonstrate desktop-publishing skills by applying advanced software features
- 2.3 create and format advanced charts to display information effectively
- 3.3 enhance presentations using advanced features

- 4.2 design and create database tables, forms, queries, and reports
- 4.3 retrieve and manipulate data to solve problems

## **Personal Development**

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Graduates will be able to continue to learn and to pursue an active, healthy lifestyle.

Students will be expected to

- 6.1 explore practices used to protect computer data
- 6.2 investigate practices used to protect personal online identity
- 6.3 research emerging technologies

## **Problem Solving**

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Graduates will be able to use the strategies and processes needed to solve a wide variety of problems, including those requiring language, mathematical, and scientific concepts.

Students will be expected to

- 1.1 create professional looking documents using basic and advanced software features
- 2.3 create and format advanced charts to display information effectively
- 4.3 retrieve and manipulate data to solve problems
- 5.1 integrate word processing, spreadsheet, database, and presentation software to solve a variety of business simulations or case studies

## **Technological Competence**

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Graduates will be able to use a variety of technologies, demonstrate an understanding of technological applications, and apply appropriate technologies for solving problems.

Students will be expected to

- 1.2 develop and demonstrate desktop-publishing skills by applying advanced software features
- 2.2 demonstrate an understanding of advanced spreadsheet concepts
- 3.3 enhance presentations using advanced features
- 4.3 retrieve and manipulate data to solve problems
- 5.2 explore the principles of effective website design
- 5.3 explore and analyze content credibility of websites
- 6.3 research emerging technologies

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## Business Technology 12 Unifying Concepts

As a result of their learning experiences in Business Technology 12, students will be expected to

1. extend and apply their skills in document processing and desktop-publishing design
2. extend and apply their skills in creating and using spreadsheets to manage data and solve problems
3. use presentation software effectively and efficiently to organize and present ideas
4. create and manipulate data using a database management system
5. integrate software and explore and evaluate websites
6. explore the capabilities and limitations of current and emerging technologies

## Specific Curriculum Outcomes

### Module 1: Advanced Document Processing / Desktop Publishing (25–30 hours)

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Students will be expected to

- 1.1 create professional looking documents using basic and advanced software features
- 1.2 develop and demonstrate desktop-publishing skills by applying advanced software features

### Module 2: Advanced Spreadsheet Applications (20–25 hours)

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Students will be expected to

- 2.1 review the purpose, characteristics, and terminology associated with the use of spreadsheet application software
- 2.2 demonstrate an understanding of advanced spreadsheet concepts
- 2.3 create and format advanced charts to display information effectively

### Module 3: Presentation Software (10–15 hours)

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Students will be expected to

- 3.1 identify the purpose, characteristics, and terminology associated with the use of presentation software
- 3.2 create, format, and edit slide presentations
- 3.3 enhance presentations using advanced features

### Module 4: Database Management Systems (20–25 hours)

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Students will be expected to

- 4.1 identify the purpose, characteristics, and terminology associated with the use of database management systems
- 4.2 design and create database tables, forms, queries, and reports
- 4.3 retrieve and manipulate data to solve problems

## **Module 5: Software Integration and Website Exploration/Evaluation (20 hours)**

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Students will be expected to

- 5.1 integrate word processing, spreadsheet, database, and presentation software to solve a variety of business simulations or case studies
- 5.2 explore the principles of effective website design
- 5.3 explore and analyze content credibility of websites

## **Module 6: Careers in Accounting**

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Students will be expected to

- 6.1 explore practices used to protect computer data
- 6.2 investigate practices used to protect personal online identity
- 6.3 research emerging technologies

# Contexts for Learning and Teaching

## Principles of Learning

The public school program is based on principles of learning that teachers and administrators should use as the basis of the experiences they plan for their students. These principles include the following:

### **1. Learning is a process of actively constructing knowledge.**

Therefore, teachers and administrators have a responsibility to

- create environments and plan experiences that foster inquiry, questioning, predicting, exploring, collecting, educational play, and communicating
- engage learners in experiences that encourage their personal construction of knowledge, for example, hands-on, minds-on science and math; drama; creative movement; artistic representation; writing and talking to learn
- provide learners with experiences that actively involve them and are personally meaningful

### **2. Students construct knowledge and make it meaningful in terms of their prior knowledge and experiences.**

Therefore, teachers and administrators have a responsibility to

- find out what students already know and can do
- create learning environments and plan experiences that build on learners' prior knowledge
- ensure that learners are able to see themselves reflected in the learning materials used in the school
- recognize, value, and use the great diversity of experiences and information students bring to school
- provide learning opportunities that respect and support students' racial, cultural, and social identity
- ensure that students are invited or challenged to build on prior knowledge, integrating new understandings with existing understandings

### **3. Learning is enhanced when it takes place in a social and collaborative environment.**

Therefore, teachers and administrators have a responsibility to

- ensure that talk, group work, and collaborative ventures are central to class activities
- see that learners have frequent opportunities to learn from and with others
- structure opportunities for learners to engage in diverse social interactions with peers and adults
- help students to see themselves as members of a community of learners

#### **4. Students need to continue to view learning as an integrated whole.**

Therefore, teachers and administrators have a responsibility to

- plan opportunities to help students make connections across the curriculum and with the world outside and structure activities that require students to reflect on those connections
- invite students to apply strategies from across the curriculum to solve problems in real situations

#### **5. Learners must see themselves as capable and successful.**

Therefore, teachers and administrators have a responsibility to

- provide activities, resources, and challenges that are developmentally appropriate to the learner
- communicate high expectations for achievement to all students
- encourage risk-taking in learning
- ensure that all students experience genuine success on a regular basis
- value experimentation and treat approximation as signs of growth
- provide frequent opportunities for students to reflect on and describe what they know and can do
- provide learning experiences and resources that reflect the diversity of the local and global community
- provide learning opportunities that develop self-esteem

#### **6. Learners have different ways of knowing and representing knowledge.**

Therefore, teachers and administrators have a responsibility to

- recognize each learner's preferred ways of constructing meaning and provide opportunities for exploring alternative ways
- plan a wide variety of open-ended experiences and assessment strategies
- recognize, acknowledge, and build on students' diverse ways of knowing and representing their knowledge
- structure frequent opportunities for students to use various art forms—music, drama, visual arts, dance, movement, crafts—as a means of exploring, formulating, and expressing ideas

#### **7. Reflection is an integral part of learning.**

Therefore, teachers and administrators have a responsibility to

- challenge their beliefs and practices based on continuous reflection
- reflect on their own learning processes and experiences
- encourage students to reflect on their learning processes and experiences
- encourage students to acknowledge and articulate their learnings
- help students use their reflections to understand themselves as learners, make connections with other learnings, and proceed with learning

## A Variety of Learning Styles and Needs

Learners have many ways of learning, knowing, understanding, and creating meaning. Research into links between learning styles and preferences and the physiology and function of the brain has provided educators with a number of helpful concepts of, and models for, learning. Howard Gardner, for example, identifies eight broad frames of mind or intelligences. Gardner believes that each learner has a unique combination of strengths and weaknesses in these eight areas, but that the intelligences can be more fully developed through diverse learning experiences. Other researchers and education psychologists use different models to describe and organize learning preferences.

Students' ability to learn is also influenced by individual preferences and needs within a range of environmental factors, including light, temperature, sound levels, nutrition, proximity to others, opportunities to move around, and time of day.

How students receive and process information and the ways they interact with peers and their environment, in specific contexts, are both indicators and shapers of their preferred learning styles. Most learners have a preferred learning style, depending on the situation and the type and form of information the student is dealing with, just as most teachers have a preferred teaching style, depending on the context. By reflecting on their own styles and preferences as learners and as teachers in various contexts, teachers can

- build on their own teaching-style strengths
- develop awareness of, and expertise in, a number of learning and teaching styles and preferences
- identify differences in student learning styles and preferences
- organize learning experiences to accommodate the range of ways in which students learn, especially for whom the range of ways of learning is limited

## The Senior High School Learning Environment

Learning experiences and resources that engage students' multiple ways of understanding allow them to become aware of and reflect on their learning processes and preferences. To enhance their opportunities for success, students need

- a variety of learning experiences to accommodate their diverse learning styles and preferences
- opportunities to reflect on their preferences and the preferences of others to understand how they learn best and that others may learn differently
- opportunities to explore, apply, and experiment with learning styles other than those they prefer, in learning contexts that encourage risk taking
- opportunities to return to preferred learning styles at critical stages in their learning
- opportunities to reflect on other factors that affect their learning; for example, environmental, emotional, sociological, cultural, and physical factors
- a timeline appropriate for their individual learning needs within which to complete their work

## Creating Community

To establish the supportive environment that characterizes a community of learners, teachers need to demonstrate a valuing of all learners, illustrating how diversity enhances the learning experiences of all students; for example, by emphasizing courtesy in the classroom through greeting students by name, thanking them for answers, and inviting, rather than demanding, participation. Students could also be encouraged to share interests, experiences, and expertise.

Students must know one another in order to take learning risks, make good decisions about their learning, and build peer partnerships for tutoring, sharing, co-operative learning, and other collaborative learning experiences. Through mini-lessons, workshops, and small-group dynamic activities during initial classes, knowledge is shared about individual learning styles, interpersonal skills, and team building.

The teacher should act as a facilitator, attending to both active and passive students during group activities, modelling ways of drawing everyone into the activity as well as ways of respecting and valuing each person's contribution, and identifying learners' strengths and needs for future conferences on an individual basis.

Having established community within the classroom, the teacher and students together can make decisions about learning activities. Whether students are working as a whole class, in small groups, in triads, in pairs, or individually, teachers can

- encourage comments from all students during whole-class discussion, demonstrating confidence in and respect for their ideas
- guide students to direct questions evenly to members of the group
- encourage students to discover and work from the prior knowledge in their own social, racial, or cultural experiences
- encourage questions, probing but never assuming prior knowledge
- select partners or encourage students to select different partners for specific purposes
- help students establish a comfort zone in small groups where they will be willing to contribute to the learning experience
- observe students during group work, identifying strengths and needs, and conference with individuals to help them develop new roles and strategies
- include options for students to work alone for specific and clearly defined purposes

## Building the Climate

The development of a positive and productive classroom climate is vital to Business Technology 12. It is essential that teachers spend time during the first few weeks of the course to develop a positive classroom atmosphere that emphasizes respect for the feelings and values of others and a focus on the skills and attitudes expected in the workplace. A positive classroom environment generates a sense of significance. Students feel that they are significant, that they will be heard and listened to, and that their opinions will be valued by both the teacher and their peers.

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## Trust

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Students perceive an honest and genuine interest in their development on the part of the teacher and their peers.

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## Comfort

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Students feel that they can interact openly with others and that their need for privacy will be respected.

Teachers may find the following suggestions helpful as they work toward developing a positive classroom climate.

- Accentuate the positive. Teachers openly show concern and respect for students, are supportive, and provide positive feedback.
- Establish ground rules at the outset and adhere to them. Invite students to help to develop the expectations for the classroom.
- Balance the level of student participation. Ensure that all students have opportunities to participate.
- Be a good listener and encourage your students to become good listeners. It is often useful to ask a student to rephrase a question to discover its true intent or meaning. It is also helpful sometimes for the teacher to rephrase the questions and ask, “Did you mean \_\_\_?” or “Did I understand you correctly to say that \_\_\_?”
- Analyze your own level of participation. Be the organizer or the facilitator, but do not dominate discussion. Give students the responsibility to control their own discussion.
- Encourage students’ input on difficult issues. Do not attempt to be the authority. Give students time to consider their responses. Values-related matters may not have a right answer.
- Respect students’ rights to privacy. Information gained about students’ personal lives is confidential, and the right to privacy must be respected. Students may choose to share information, but the option to “pass” should be clearly stated.

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## Confidentiality

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The duty to report suspected child abuse and neglect overrides the confidential requirement of all professional relationships. Students must be aware of the teacher’s responsibilities in such instances.

Some topics in this course may be considered sensitive or controversial. The degree of sensitivity will vary from community to community and from individual to individual, depending on personal, religious, or ethnic beliefs and values. Examples of such issues include abortion, contraception, homosexuality, masturbation, sexual abuse, and sexually transmitted diseases.

## Sensitive Issues

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Many school boards have developed policies or guidelines that provide direction for teachers who may address these and other sensitive issues in their classrooms. Teachers must avail themselves of such information.

Teachers should avoid taking a one-sided approach when addressing issues of a controversial nature. Students need to explore a variety of perspectives regarding a particular issue to enable them to make appropriate personal decisions. They also need the opportunity to discuss issues related to values with others, to hear divergent opinions, and to express their own opinions. It is important that students be allowed to clarify their own values in a non-judgmental environment, confident that the teacher's value position on an issue will not be imposed and assured that no one in the class will be put down or criticized for holding a certain value.

- Stress the students' right to privacy. Encourage students to discuss issues that concern them, but support their right to privacy.
- Be sensitive to values. Values are conveyed as much by what is not said or done as by what is said or done. At the same time, help students to understand the role of values in decision making and interaction among people.
- Be prepared to discuss all sides of controversial issues so that students can identify their personal feelings on the issue.
- Provide information to all students about school and community agencies and resources available to them if they need help with a problem.
- Assess your own thoughts and feelings about sensitive issues.

## Engaging All Students

A supportive environment is important for all learners. Teachers can engage learners by

- getting to know their students as persons, while at the same time respecting their privacy
- incorporating opportunities for students to have a voice
- establishing criteria for learning and for individual assignments collaboratively to ensure students' ownership of their learning
- setting goals that are attainable and that will promote a sense of accomplishment and self-satisfaction
- offering choice, whenever possible, of reading material, of methods to present knowledge and information, and of assignment topic or focus within a topic
- being honest and sincere in order to develop a trusting relationship, while at the same time responding to student work in a positive and encouraging way

Students need to engage fully in learning experiences that

- are perceived as authentic and worthwhile
- build on their prior knowledge
- allow them to construct meaning in their own way, at their own pace
- link learning to understanding and affirming their own experiences
- encourage them to experience ownership and control of their learning
- feature frequent feedback and encouragement

- include opportunities for teachers and others to provide individuals with clarification and elaboration
- are not threatening or intimidating
- focus on successes rather than failures
- are organized into clear, structured segments

Acting as facilitators to encourage students to take more responsibility for their own learning, teachers can provide opportunities for students to decide how intensively to focus on particular areas within the Business Technology 12 curriculum outcomes framework.

Teachers can work with individual students to identify learning outcomes that reflect the student's interests and career plans. It is important that teachers design learning experiences that provide a balance between challenge and success and between support and autonomy.

All students benefit from a variety of grouping arrangements that allow optimum opportunities for meaningful teacher-student and student-student interaction. An effective instructional design provides a balance of the following grouping strategies:

- large-group or whole-class learning
- teacher-directed small-group learning
- small-group-directed learning
- co-operative learning groups
- one-to-one teacher-student learning
- independent learning
- partnered learning
- peer or cross-age tutoring
- mentoring

## Health and Safety

Activities in skilled-trades centres, shops, laboratories, or workplace settings should include an element of safety education. Teachers should plan learning experiences with a specific safety focus and also embed safe practices in classroom procedures and routines in order that students may acquire

- a strong orientation toward both personal and group safety
- an awareness of potential safety hazards at school and in the workplace
- a knowledge of safety procedures and safe work habits
- a knowledge of emergency procedures
- the ability to design and maintain safe work areas

## Meeting the Needs of All Students

Learners require inclusive classrooms, where a wide variety of learning experiences ensures that all students have equitable opportunities to reach their potential.

In designing learning experiences, teachers must accommodate the learning needs of individuals and consider the abilities, experiences, interests, and values that they bring to the classroom.

In recognizing and valuing the diversity of students, teachers should consider ways to

- create a climate and design learning experiences to affirm the dignity and worth of all learners in the classroom community
- give consideration to the social and economic situations of all learners
- model the use of inclusive language, attitudes, and actions supportive of all learners
- acknowledge racial and cultural uniqueness
- adapt classroom organization, teaching strategies, assessment practices, time, and learning resources to address learners' needs and build on their strengths
- provide opportunities for learners to work in a variety of contexts, including mixed-ability groupings
- identify and use strategies and resources that respond to the range of students' learning styles and preferences
- build on students' individual levels of knowledge, skills, and attitudes
- design learning and assessment tasks that draw on learners' strengths
- use students' strengths and abilities to motivate and support their learning
- provide opportunities for students to make choices that will broaden their access to a range of learning experiences
- acknowledge the accomplishment of learning tasks, especially those that learners believed were too challenging for them

In a supportive learning environment, all students receive equitable access to resources, including the teacher's time and attention, technology, learning assistance, a range of roles in group activities, and choices of learning experiences when options are available. All students are disadvantaged when oral, written, and visual language creates, reflects, and reinforces stereotyping.

Teachers promote social, cultural, racial, and gender equity when they provide opportunities for students to critically examine the texts, contexts, and environments associated with Business Technology 12 in the classroom, in the community, in the workplace, and in the media.

Teachers should look for opportunities to

- promote critical thinking
- recognize knowledge as socially constructed
- model gender-fair language and respectful listening in all their interactions with students
- articulate high expectations for all students
- provide equal opportunity for input and response from all students
- encourage all students to assume leadership roles
- ensure that all students have a broad range of choice in learning and assessment tasks
- encourage students to avoid making decisions about roles and language choices based on stereotyping

- include the experiences and perceptions of all students in all aspects of their learning
- recognize the contributions of men and women of all social, cultural, linguistic, and racial backgrounds to all disciplines throughout history

Social and cultural diversity in student populations expands and enriches the learning experiences of all students. Students can learn much from the backgrounds, experiences, and perspectives of their classmates. In a community of learners, participants explore the diversity of their own and others' customs, histories, values, beliefs, languages, and ways of seeing and making sense of the world.

When learning experiences are structured to allow for a range of perspectives, students from varied social and cultural backgrounds realize that their ways of seeing and knowing are not the only ones possible. They can come to examine more carefully the complexity of ideas and issues arising from the differences in their perspectives and understand how cultural and social diversity enriches their lives and their culture.

A range of learning experiences, teaching and learning strategies, resources, and environments provide expanded opportunities for all learners to experience success as they work toward the achievement of designated outcomes. Many of the learning experiences suggested in this guide provide access for a wide range of learners, simultaneously emphasizing both group support and individual activity. Similarly, the suggestions for a variety of assessment practices provide multiple ways for students to demonstrate their achievements.

In order to provide a range of learning experiences to challenge all students, teachers may adapt learning contexts to stimulate and extend learning. Teachers should consider ways that students can extend their knowledge base, thinking processes, learning strategies, self-awareness, and insights. Some learners can benefit from opportunities to negotiate their own challenges, design their own learning experiences, set their own schedules, and work individually or with learning partners.

Some students' learning needs may be met by opportunities for them to focus on learning contexts that emphasize experimentation, inquiry, and critical and personal perspectives. In these contexts, teachers should work with students to identify and obtain access to appropriate resources.

## **The Role of Technologies**

### **Integration**

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Students of Business Technology 12 require access to communication and information technology on a daily basis in order to achieve the outcomes of the course. As students become skilled users of office productivity software, they will use it to facilitate their learning across the curriculum, creating a need for access to technologies throughout the school day.

# Vision for the Integration of Information Technologies

The Nova Scotia Department of Education has articulated five strands in the learning outcomes framework areas for the integration of information and communication technology within public school programs.

## Basic Operations and Concepts

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Concepts and skills associated with the safe, efficient operation of a range of information and communication technology.

## Social, Ethical, and Human Issues

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The understanding associated with the use of ICT, which encourages in students a commitment to pursue personal and social good, particularly to build and improve their learning environments and to foster stronger relationships with their peers and others who support their learning.

## Productivity

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The efficient selection and use of ICT to perform tasks such as

- the exploration of ideas
- data collection
- data manipulation, including the discovery of patterns and relationships
- problem solving
- the representation of learning

## Communication

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Specific, interactive technology use supports student collaboration and sharing through communication.

## Research, Problem Solving, and Decision Making

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Students' organization, reasoning, and evaluation of their learning rationalize their use of information and communication technology.

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# Module 1: Advanced Document Processing / Desktop Publishing

## Unifying Concept

1. Students will extend and apply their skills in document processing and desktop-publishing design.

## Outcome

- 1.1 Students will be expected to create professional looking documents using basic and advanced software features.

## Suggestions for Assessment

Students can

- prepare properly formatted assignments
- conduct on-going self-/peer evaluations of their prepared documents
- submit assignments for evaluation

Teachers can

- provide regular feedback by observing students as they prepare documents
- allow students opportunities to revise assignments based on teacher feedback
- develop workplace-related assignments

## Suggestions for Learning and Teaching

Students can

- create various documents such as reports, letters, tables, memorandums, and newsletters while applying advanced features such as
  - autotext
  - insert file
  - find and replace
  - compare documents
  - breaks
  - styles
  - endnotes and footnotes

- headers and footers
- themes
- email editor
- templates for example memos/faxes
- fields and forms
- automatic table of contents
- autoformat tables
- autocorrect
- hyperlinking
- tab features
- dot leaders
- mail merge
- outlines
- envelopes and labels
- macros (if permitted)
- integrate information such as charts, tables, and graphics from other programs into an existing document

Teachers can

- review basic software features covered in Business Technology 11
- demonstrate the mechanics of advanced software features
- encourage students to use the Help menu when needed
- direct students to appropriate online tutorials
- give frequent feedback and coaching

## Notes and Resources

- *Glencoe Keyboarding with Computer Applications*
- *Learning Microsoft Office 2003*
- *Learning Microsoft Office 2007*
- *Introduction to Desktop Publishing with Digital Graphics*
- Although the textbook may provide general assignments, it is important for teachers to create assignments and examples that are relevant, authentic, and engaging.

## Outcome

- 1.2 Students will be expected to develop and demonstrate desktop-publishing skills by applying advanced software features.

## Suggestions for Assessment

Students can

- submit formatted documents that demonstrate desktop-publishing skills
- complete objective and performance-based quizzes and tests
- complete all assignments error free and properly formatted
- develop a portfolio of completed assignments

Teachers can

- check final documents for formatting and proofreading errors
- provide students with a rubric that can be used to assess their work
- provide opportunities to improve results on assignments

## Suggestions for Learning and Teaching

Students can

- apply advanced formatting and page layout features to improve the appearance of documents using the following features:
  - text alignment options
  - justifying and indenting text
  - font face, style, appearance, and size
  - ornamental font faces
  - design objects
  - font shading
  - themes
  - regular, balanced, and parallel newspaper columns with custom widths
  - pull quotes
  - clipart
    - group, ungroup
    - crop, size
    - rotate
    - set transparent colour
  - text boxes
  - features such as
    - reverse text
    - drop caps

- bullets and numbers
  - special characters and features
  - text art
- create a table structure, enter text, and use the following features to manipulate text:
  - sort data
  - autoformat
  - formulas
  - converting text to table
- create a variety of documents such as
  - newsletters
  - invitations
  - business cards
  - letterhead
  - certificates
  - greeting cards
  - calendars
  - programs
  - menus
  - brochures

Teachers can

- provide students with examples of effective desktop published documents
- demonstrate formatting features using the appropriate computer software
- provide reinforcement activities
- encourage students to solve problems independently and collaboratively before seeking the teacher’s assistance

## Notes and Resources

- A variety of software applications may be used to create desktop-published documents.

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# Module 2: Advanced Spreadsheet Applications

## Unifying Concept

2. Students will extend and apply their skills in creating and using spreadsheets to manage data and solve problems.

## Outcome

- 2.1 Students will be expected to review the purpose, characteristics, and terminology associated with the use of spreadsheet application software.

## Suggestions for Assessment

Students can

- label and explain the parts of a spreadsheet window
- create a list of suggested spreadsheet applications
- discuss and provide examples of how spreadsheet applications are used in business

Teachers can

- provide opportunities for students to label and describe the parts of a spreadsheet window
- monitor student use of proper spreadsheet terminology
- frequently check students' progress with quizzes and tests

## Suggestions for Learning and Teaching

Students can

- examine models of spreadsheets and describe the features for a range of applications
- construct a list of personal spreadsheet applications based on their interests
- identify the layout of the spreadsheet
- use correct spreadsheet terminology

Teachers can

- review the parts of a spreadsheet using the spreadsheet unit from the textbook and/or an LCD projector
- use appropriate spreadsheet terminology during classroom instruction

- provide students with examples of different spreadsheet applications
- use a tutorial to review spreadsheet characteristics and terminology

## **Notes and Resources**

## Outcome

2.2 Students will be expected to demonstrate an understanding of advanced spreadsheet concepts.

## Suggestions for Assessment

Students can

- construct and modify spreadsheets using values, functions, and/or formulas
- complete assignments from the listed text and submit for assessment
- complete Challenge Exercises from the CD that accompanies the text
- solve problems involving the collection, display, and analysis of data using workplace scenarios

Teachers can

- provide students with a rubric to assess their work
- offer feedback on accuracy of use of functions and/or formulas
- evaluate assignments relative to the concepts presented

## Suggestions for Learning and Teaching

Students can

- complete assignments and exercises in order to demonstrate an understanding of basic functions and formulas such as
  - addition, subtraction, multiplication, division
  - SUM, AVERAGE, MAX, MIN, COUNT
  - relative and absolute references
- complete assignments and exercises in order to demonstrate an understanding of advanced functions, formulas and features such as
  - “if” statements (sumif, countif)
  - financial functions (PMT, NPER, RATE)
  - V lookup and H lookup
  - 3-D formulas and references
  - concatenation
  - paste special
  - pivot tables
  - filtering and sorting
  - adding comments
  - transposing and freezing
  - explore software template options
  - linking spreadsheet objects to other software
  - advanced printing features

Teachers can

- review formulas and functions used to perform calculations in a variety of spreadsheet activities
- introduce advanced functions and formulas by showing examples
- provide a variety of workplace problems with step-by-step instructions
- provide a variety of data files for student use (See Notes and Resources.)
- direct students to appropriate on-line tutorials for review and update

## Notes and Resources

- Data files provided with the textbook are usually put on the school server in a shared directory available to students.

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## Outcome

- 2.3 Students will be expected to create and format advanced charts to display information effectively.

## Suggestions for Assessment

Students can

- develop customized charts using data from a variety of sources
- solve an assortment of problems using spreadsheet software
- complete assessments to test knowledge of spreadsheet charting

Teachers can

- provide frequent constructive and descriptive feedback on students' progress
- evaluate assignments using a rubric

## Suggestions for Learning and Teaching

Students can

- use problem-solving skills to identify appropriate selection of data to be charted
- create effective and appropriate charts to display data
- format charts to display information in an attractive and effective manner
- integrate charts into other software applications to complement the document presentation

Teachers can

- demonstrate to the class previously learned and new charting concepts
- provide Challenge Exercises using data files provided with the text
- direct students to appropriate online tutorials for review or update
- coach students to interpret charted information with a relevant representation of the data

## Notes and Resources



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# Module 3: Presentation Software

## Unifying Concept

3. Students will use presentation software effectively and efficiently to organize and present ideas.

## Outcome

- 3.1 Students will be expected to identify the characteristics and terminology associated with the use of presentation software.

## Suggestions for Assessment

Students can

- label and explain the parts of a presentation software screen
- discuss and compare evaluations of sample presentations
- assess presentation slides and identify areas for improvement

Teachers can

- discuss and give feedback on students' findings
- observe students' progress and provide appropriate feedback
- model the appropriate use of presentation software

## Suggestions for Learning and Teaching

Students can

- research information about well-designed versus poorly-designed presentation slides
- design a rubric to evaluate presentations
- analyze well-designed versus poorly-designed presentations using a rubric

Teachers can

- demonstrate the names and functions of the parts of the presentation screen
- use appropriate terminology during classroom instruction
- provide a set of criteria for students to evaluate slide presentations
- provide students with samples of well-designed versus poorly-designed presentations

## Notes and Resources

## Outcome

3.2 Students will be expected to create, format, and edit slide presentations.

## Suggestions for Assessment

Students can

- use presentation software to create and format presentations
- edit presentations following suggestions from the teacher
- show presentations and obtain feedback from an audience
- use student-created rubrics for self-/peer evaluation

Teachers can

- evaluate presentations based on a rubric
- monitor students' progress and provide constructive and descriptive feedback at regular intervals

## Suggestion for Learning and Teaching

Students can

- use the following features to create presentations:
  - inserting, deleting, and moving slides
  - slide layouts
  - slide transitions
  - slide designs
  - background themes
  - formatting text
  - bullets and numbering
  - hyperlinking slides
  - slide masters
- print presentations in a variety of formats
  - outline view
  - notes page
  - handouts
  - slides
- review marking rubrics in advance to help meet assessment expectations

Teachers can

- demonstrate features of the presentation software to the class
- use rubrics to clarify student expectations
- provide design tips to the students

## Notes and Resources

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## Outcome

3.3 Students will be expected to enhance presentations using advanced software features.

## Suggestions for Assessment

Students can

- rehearse timed presentations for feedback
- show presentations and get feedback from peers
- submit presentations for evaluation

Teachers can

- monitor students' progress
- provide appropriate feedback
- evaluate presentations based on a rubric

## Suggestion for Learning and Teaching

Students can

- complete assignments using the following advanced features:
  - autoshapes and draw tools
  - sound effects
  - embedded charts and tables
  - rehearsed timings
  - headers and footers
  - custom animation/motion
  - video and sound clips
  - save a presentation as a web page

Teachers can

- demonstrate advanced features and model their use to enhance presentations
- provide peer-learning opportunities in the classroom
- direct students to appropriate online tutorials for review or updates
- provide assignments and rubrics for evaluation

## Notes and Resources



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# Module 4: Database Management Systems

## Unifying Concept

4. Students will create and manipulate data using a database management system.

## Outcome

- 4.1 Students will be expected to identify the purpose, characteristics, and terminology associated with the use of database management systems.

## Suggestions for Assessment

Students can

- identify and explain the functions of the database objects
  - tables
  - forms
  - queries
  - reports
- create a list of database applications to demonstrate understanding of database functions
- use correct database terminology

Teachers can

- coach students to use proper terminology when working with database files and objects
- provide multiple opportunities for students to demonstrate their understanding of the range of applications of a database

## Suggestions for Learning and Teaching

Students can

- identify and explain the purpose of each of the objects of a database file: tables, forms, queries, reports
- examine sample database files and their objects
- use tutorials to review or update skills

Teachers can

- provide students with examples of different database applications (e.g., customer lists, inventory, human resources, supplier lists)
- explain how to properly download database files provided with the text
- demonstrate the components of a database file and associated terminology
- use appropriate database terminology during classroom instructions

## Notes and Resources

- *Glencoe Keyboarding with Computer Applications*, Unit 8
- *Learning Microsoft Office 2003*, Pearson Education, Inc.
- *Learning Microsoft Office 2007*, Pearson Education, Inc.

## Outcome

4.2 Students will be expected to design and create database tables, forms, queries, and reports.

## Suggestions for Assessment

Students can

- create database tables, forms, queries, and reports using data from a variety of sources
- select and print samples of tables, forms, queries, and reports for inclusion in portfolios
- complete tests to demonstrate understanding of database concepts

Teachers can

- provide frequent constructive and descriptive feedback
- supply students with rubrics to assess assignments and tests

## Suggestions for Learning and Teaching

Students can

- plan and create database tables using a variety of field types and properties such as lookup wizards and input masks
- design and create data input forms from tables
- enter data into tables or forms
- create queries from tables to extract desired data
- design and create a variety of reports from tables or queries

Teachers can

- demonstrate procedures related to the creation of database tables using a variety of field types and properties
- demonstrate how to create forms from the tables
- explain the purpose of a query and then show students how to create and execute a query
- provide a variety of problems with step-by-step instructions
- provide data files for student use
- direct students to an appropriate online tutorial for review or updating

## Notes and Resources

- *Glencoe Keyboarding with Computer Applications, Unit 8*
- *Learning Microsoft Office 2003*
- *Learning Microsoft Office 2007*

## Outcome

4.3 Students will be expected to retrieve and manipulate data to solve problems.

## Suggestions for Assessment

Students can

- use sorting and filtering features to display data to complete a variety of assignments
- problem solve using database functions to complete assignments and performance tasks
- complete test(s) that demonstrates understanding of data manipulation

Teachers can

- provide frequent constructive and descriptive feedback
- supply students with rubrics to assess assignments and tests

## Suggestions for Learning and Teaching

Students can

- complete exercises that require sorting and filtering data
- complete exercises that require relationships between tables in a database file
- create data and subdatasheets in a database file
- create a database file and record primary or secondary data
- work collaboratively to manipulate data to solve problems

Teachers can

- demonstrate concepts and procedures related to retrieving and manipulating data
- provide a variety of problems with step-by-step instructions
- provide data files for problem-solving activities
- direct students to an appropriate online tutorial for review or updating

## Notes and Resources

- Database files need to be provided electronically to the students for effective teaching and learning as time does not permit students to enter sufficient data to provide a realistic learning experience.
- *Glencoe Keyboarding with Computer Applications*, Unit 8, p. 514
- *Learning Microsoft Office 2003*, Pearson Education, Inc.
- *Learning Microsoft Office 2007* (CD includes data files)
- Statistics Canada website

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# Module 5: Software Integration and Website Exploration/Evaluation

## Unifying Concept

5. Students will integrate software, and explore and evaluate websites.

## Outcome

- 5.1 Students will be expected to integrate word processing, spreadsheet, database, and presentation software to solve a variety of business simulations or case studies.

## Suggestions for Assessment

Students can

- compare assignment results with expectations of the rubric
- create solutions to case studies or simulations that may involve the composition and creation of a word processed document, the design and creation of a database file, the design and production of a spreadsheet, and production of a presentation software file
- complete tests to demonstrate mastery of skills required to integrate data
- select examples of assignments to place in their portfolio

Teachers can

- provide students with a rubric that will be used in assessing their work
- encourage students to apply the rubric as they progress
- suggest improvements and provide feedback

## Suggestions for Learning and Teaching

Students can

- work individually or in pairs using a problem-solving approach to prepare solutions to teacher-provided simulations or Challenge Exercises
- save their assignments as web pages

Teachers can

- provide Challenge Exercises from the text such as
  - creating a slide presentation from a word outline
  - downloading clipart from the web (check copyright) and insert it into a presentation

- linking spreadsheet data to a table on a presentation slide
- exporting database tables to a spreadsheet for analysis
- completing a mail merge in a word processing document from a database
- providing a database query as a data source for a form letter mail merge
- embedding spreadsheet data in a word document
- showing students how to convert their assignments into web pages
- provide completed case study examples
- provide suggestions for improvement by monitoring progress

## Notes and Resources

## Outcome

5.2 Students will be expected to explore the principles of effective website design.

## Suggestions for Assessment

Students can

- discuss in small groups prior perceptions of well-designed versus poorly-designed websites
- submit a research report on elements of website design
- complete web design evaluation checklists
- create a report or presentation comparing well-designed versus poorly-designed websites

Teachers can

- monitor students' online activity during research
- evaluate web design evaluation checklist
- discuss research report and give feedback on students' findings
- evaluate reports or presentations based on a set of criteria

## Suggestions for Learning and Teaching

Students can

- evaluate websites based on a set of criteria
- research and prepare a report or presentation on well-designed versus poorly-designed websites
- identify career options in website design, development, and management

Teachers can

- invite guest speakers into the classroom to discuss website design and career options (Information may be obtained from the Career Options Nova Scotia website.)
- provide a checklist to evaluate websites using the following criteria: navigation, ease of use, audience appeal, suitability, and overall impression
- provide examples of a variety of website designs for comparison and evaluation
- provide web design career search options for students

## Notes and Resources

- Teachers and students should be able to find an abundance of information on this topic on line. See Appendix for a few ideas.

## Outcome

5.3 Students will be expected to explore and analyze content credibility of websites.

## Suggestions for Assessment

Students can

- evaluate and critique information obtained from a variety of teacher-suggested websites
- participate in group discussions and determine best and worst sites in a WebQuest exercise
- compare results and draw conclusions about website credibility from their research
- present findings and conclusions in a report or presentation format

Teachers can

- assess results of individual research
- provide a WebQuest (See Appendix for sample.)
  - Rank websites for credibility, content, bias, and usability.

## Suggestions for Learning and Teaching

Students can

- explore the Internet for criteria to assess the validity of websites
- work in groups to examine, evaluate, and rank various websites
- provide examples and analyze websites that do not demonstrate credibility

Teachers can

- discuss criteria for evaluating credibility of websites
- provide website examples that demonstrate credibility
- have students work in groups to complete website evaluation WebQuest
- provide coaching and feedback during the investigation process

## Notes and Resources

- Appendix: WebQuest: Evaluating Websites

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# Module 6: Computer Safety and Emerging Technologies

## Unifying Concept

6. Students will explore the capabilities and limitations of current and emerging technologies.

## Outcome

- 6.1 Students will be expected to explore current practices used to protect computer data.

## Suggestions for Assessment

Students can

- compile a list of possible harmful computer data safety issues and solutions
- compare antivirus software products and report results
- research and present information about computer data safety issues

Teachers can

- observe and participate in class discussions
- evaluate reports submitted by students and provide appropriate feedback

## Suggestions for Learning and Teaching

Students can

- share experiences about computer safety issues
- construct a list of possible harmful computer safety issues
- identify safety issues that may arise when using the Internet
- generate a table or report outlining safety issues and solutions

Teachers can

- lead a class discussion about computer safety issues such as
  - viruses, Trojan horses, worms
  - spam, pop-ups, Ad-Aware
  - weak passwords
  - protecting personal and business data
  - computer hoaxes
  - firewalls

- encryption
- acceptable use policies
- have students discuss the difference between personal, government, and business data protection and implications
- invite guest speakers to discuss computer safety issues
- introduce students to various antivirus software products and their ratings
- provide students with newspaper or magazine articles about protecting computer data

## Notes and Resources

## Outcome

6.2 Students will be expected to investigate practices used to protect personal online identity.

## Suggestions for Assessment

Students can

- do a WebQuest on online safety issues to present to the class
- create a brochure or presentation identifying various online personal identity safety issues

Teachers can

- observe students as they discuss their findings
- evaluate assignments submitted by students

## Suggestions for Learning and Teaching

Students can

- explore various websites dealing with personal online safety issues
- research news reports concerning online safety issues
- self assess their personal online practices
- research ways to combat personal online safety issues by exploring topics such as
  - social networking
  - file sharing
  - cyberdating
  - weak passwords
  - password complexity
  - bogus emails
  - shopping or using credit cards online
  - Internet scams
  - hacking
  - phishing
- share personal stories about computer safety issues

Teachers can

- lead a class discussion about online safety issues
- discuss appropriate online practices used to protect personal identity
- provide examples of situations dealing with issues surrounding careless online safety practices

## Notes and Resources

## Outcome

6.3 Students will be expected to research emerging technologies.

## Suggestions for Assessment

Students can

- present information on emerging technologies using a variety of methods

Teachers can

- evaluate research presented by students

## Suggestions for Learning and Teaching

Students can

- compare and contrast different communication devices based on
  - price
  - features
  - flexibility
  - plans
- research information on emerging business technologies
- share information from research or personal experiences
- brainstorm possible future business technologies
- identify how technology has changed business processes through
  - conference calling
  - video conferences
  - telecommuting
  - interpersonal skills
  - cyber slacking

Teachers can

- invite local business people to speak to students regarding new technologies relevant to the workplace
- provide opportunities for students to explore new technologies (field trips, videos)

## Notes and Resources

- Module 6 is intended to allow students the opportunity to research and explore emerging technologies in society. As new technologies emerge, this module will naturally evolve.
- The instructor creates some of the projects with ideas used from a range of resources.

- Student handouts are utilized extensively.
- Online tutorials for Access and Excel may also be useful.
- *Glencoe Keyboarding with Computer Applications* used in Business Technology 11, may be used to review keyboarding and spreadsheets units.
- *Learning Microsoft Office 2003*, Pearson, Prentice Hall ISBN 0-13-036522-X
- *Learning Microsoft Office 2007*, Pearson, Prentice Hall ISBN 0-13-363945-2
- *Introduction to Desktop Publishing with Digital Graphics*, 2008 Glencoe ISBN 978-07-872913-3 (Student Edition)

# Assessing and Evaluating Student Learning

Assessment is the systematic process of gathering information on student learning. Evaluation is the process of analyzing, reflecting upon, and summarizing assessment information; and making judgments or decisions based upon the information gathered. The Principles of Assessment and Evaluation articulated in the document *Public School Program* should be used as the basis of assessment and evaluation policies, procedures, and practices.

## Assessment in Business Technology 12

Students entering Business Technology 12 do so with differing degrees of knowledge and understanding of the elements of developing a career, different skill levels, and different levels of understanding how important these things are to preparing for a career. In some instances, students' attitudes toward certain skills may be that they are only useful for doing school work and not in what they perceive to be the real world. Business Technology 12 works to change these attitudes and aid students in the development of the skills necessary for success in the workplace, both in their present as well as their future.

It is important to note that the LifeWork Portfolio is not an assessment tool. Although it may include artifacts that have already been used for assessment purposes, the LifeWork Portfolio is a tool for identifying strengths, interests, and skills, and for demonstrating growth.

Assessment for Business Technology 12 should facilitate these changes and, as a result, should be considered an ongoing process, not an event. Teachers need to think of assessment as being of two kinds: assessment of learning and assessment for learning.

### Assessment of Learning

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Assessment of learning is what teachers associate with summative assessment, that is, tending to be mark-driven, used to accumulate numerical data for the purpose of assigning grades. Tests, exams, and assignments given for the purpose of attaining marks fall in this group.

### Assessment for Learning

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Assessment for learning, on the other hand, works to provide students with ongoing checks of how they are doing, what kind of progress they are making, what they need to learn next in order to be successful. Student self-assessment is an important factor in assessment for learning. Anecdotal feedback, rubrics, scales, and checklists are all important ways for teachers and students to learn more about how they are doing and what they are having difficulty with.

More information on assessment can be found in *Contexts for Learning and Teaching*.

## Effective Assessment and Evaluation Practices

Effective assessment improves the quality of learning and teaching. It can help students to become more reflective and to have control of their own learning, and it can help teachers to monitor and focus their instructional programs.

Assessment and evaluation of student learning should accommodate the complexity of learning and reflect the complexity of the curriculum. Evaluation should be based on the full range of learning outcomes towards which students have been working during the reporting period, be proportionate to the learning experiences related to each outcome, and focus on patterns of achievement as well as specific achievement.

In reflecting on the effectiveness of their assessment program, teachers should consider the extent to which their practices are fair in terms of the student's background or circumstances are integrated with learning provide opportunities for authentic learning.

- Provide students with relevant, supportive feedback that helps them to shape their learning.
- Describe students' progress toward learning outcomes.
- Help them to make decisions about revising, supporting, or extending learning experiences support learning risk taking.
- Provide specific information about the processes and strategies students are using.
- Provide students with diverse and multiple opportunities to demonstrate their achievement.
- Accommodate multiple responses and a range of tasks.
- Provide evidence of achievement in which students can take pride.
- Acknowledge attitudes and values as significant learning outcome.
- Encourage students to reflect on their learning and to articulate personal learning plans.
- Help them to make decisions about teaching strategies, learning experiences and environments, student grouping, and resources.

## Involving Students in the Assessment Process

### Diverse Learning Styles and Needs

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It is important that students participate actively in the assessment and evaluation of their learning, developing their own criteria and learning to judge a range of qualities in their work. Students should have access to models in the form of scoring criteria, rubrics, and work samples.

As lifelong learners, students assess their own progress, rather than relying on external measures, for example marks, to tell them how well they are doing. Students who are empowered to assess their own progress are more likely to perceive their learning as its own reward. Rather than asking, What does the teacher want? students need to ask questions such as, What have I learned? What can I do now that I couldn't do before? What do I need to learn next? Effective assessment practices provide opportunities for students to

- assess and evaluate their learning
- set goals for future learning

Teachers should develop assessment practices that affirm and accommodate students' cultural and linguistic diversity. Teachers should consider patterns of social interaction, diverse learning styles, and the multiple ways oral, written, and visual language are used in different cultures for a range of purposes, not only in a learning context, but in a social and cultural context as well. Assessment practices must be fair, equitable, and without bias, providing a range of opportunities for students to demonstrate their learning. Teachers should be flexible in evaluating the learning success of students and seek diverse ways for students to demonstrate their personal best. In inclusive classrooms, students with special needs have opportunities to demonstrate their learning in their own way, using media that accommodates their needs and at their own pace.

When students are aware of the outcomes they are responsible for and the criteria by which their work will be assessed or evaluated, they can make informed decisions about the most effective ways to demonstrate what they know, are able to do, and value.

## Using a Variety of Assessment Strategies

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When teachers make decisions about what learning to assess and evaluate, how to assess and evaluate, and how to communicate the results, they send clear messages to students and others about what they value; for example, teachers can communicate that they value risk taking or lateral thinking by including these elements in assessment.

Assessment involves the use of a variety of methods to gather information about a wide range of student learning and to develop a valid and reliable snapshot of what students know and are able to do that is clear, comprehensive, and balanced. The assessment process provides information about each student's progress toward achievement of learning outcomes that teachers can use to assign marks, to initiate conversations with students, or to make decisions in planning subsequent learning experiences.

Teachers align evaluation and assessment practices with student-centred learning practices when they

- design assessment and evaluation tasks that help students make judgments about their own learning and performance
- provide assessment and evaluation tasks that allow for a variety of learning styles and preferences
- individualize assessment and evaluation tasks to accommodate specific learning needs
- work with students to describe and clarify what will be assessed and evaluated and how it will be assessed and evaluated
- provide students with regular and specific feedback on learning

Assessment activities, tasks, and strategies include, for example,

- |                     |                                         |
|---------------------|-----------------------------------------|
| ▪ anecdotal records | ▪ exhibitions                           |
| ▪ artifacts         | ▪ interviews (structured or informal)   |
| ▪ audiotapes        | ▪ inventories                           |
| ▪ certifications    | ▪ investigations                        |
| ▪ checklists        | ▪ learning logs or journals             |
| ▪ conferences       | ▪ media products                        |
| ▪ demonstrations    | ▪ observations (structured or informal) |
| ▪ dramatizations    | ▪ peer assessments                      |

- performance tasks
- portfolios
- projects
- questioning
- questionnaires
- quizzes, tests, examinations
- rating scales
- reports/presentations
- reviews of performance
- self-assessments
- sorting scales (rubrics)
- surveys
- videotapes
- work samples
- written assignments

## Portfolios for Assessment

A major feature of assessment and evaluation in Business Technology 12 is the use of portfolios. A portfolio is a purposeful selection of a student's work that tells the story of the student's efforts, progress, and achievement. The portfolio documents Business Technology 12 activities.

Portfolios engage students in the assessment process and allow them to participate in the evaluation of their learning. Portfolios are most effective when they provide opportunities for students to reflect on and make decisions about their learning. The students and teacher should collaborate to make decisions about the contents of the portfolio and to develop the criteria for evaluating the portfolio.

Portfolios should include

- the guidelines for selection
- the criteria for judging merit
- evidence of student reflection

Portfolio assessment is especially helpful for the student who needs significant support. Teachers should place notes and work samples from informal assessment in the portfolio and use the portfolio to collaborate with the student in identifying strengths and needs, selecting learning experiences, and selecting work that best reflects the student's progress toward achievement of learning outcomes.

It is important that students share their portfolios with other students so that all students may see exemplars that represent a range of strategies for expression and levels of complexity in ideas and understanding. Outlines and other evidence of planning allow students to examine their progress and demonstrate achievement to teachers, parents, and others.

Students should be encouraged to develop a portfolio that demonstrates their achievements in a context beyond a particular course, including letters, certificates, and photographs, for example, as well as written documents. A portfolio can be very helpful when students need to demonstrate their achievements to potential employers or admission offices of post-secondary institutions.

## Tests and Examinations

Traditional tests and examinations are not, by themselves, adequate to assess student learning. The format of tests and examinations can be revised and adapted to reflect key aspects of the curriculum. Some teachers, for example, have designed tests and examinations based on collaborative or small-group learning, projects, or portfolio learning. Creating opportunities for students to collaborate on a test or examination is an effective practice in the interactive classroom to assess learning of a higher order than recall of information, for example, learning that requires synthesis, analysis, or evaluation.

In learning activities that involve solving a Business Technology 12 problem, for example, students might work collaboratively to clarify and define the task, and then work either collaboratively or individually to develop a solution. Students might be given a range of questions, issues, or problems, and work collaboratively to clarify their understanding of the assignments and plan responses in preparation for the examination for which only one of the questions, issues, or problems will be assigned.

The initial list of questions, issues, or problems can be developed by the teacher, negotiated by the teacher with students, or developed by students and screened by the teacher.

Process-based tests and examinations allow students to demonstrate knowledge and skills and apply strategies at multiple stages in learning processes, for example, in identifying problems, challenges, and opportunities; gathering, evaluating, and synthesizing information; generating options; and developing and evaluating solutions.

Traditional tests and examinations may present a number of problems in scheduling and resource allocation. Process-based tests and examinations may be undertaken in steps during several class periods over a number of days. Students have opportunities to revise, reflect on, and extend their knowledge and understanding. Teachers have opportunities to develop comprehensive assessments, to monitor and evaluate learning at multiple points in a process, and to use time flexibly.

### Certification

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In some courses, students will need to prepare to demonstrate their learning through entrance tests and examinations, or to obtain or upgrade a certification. Replicating this type of assessment in the classroom can help students prepare for the conditions and assessment formats they may encounter in workplace and post-secondary situations.

To make this kind of assessment an effective learning experience, teachers should define a specific context and purpose, for example, the operation of a device, the identification of materials labels, or the demonstration of a technique or procedure.



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