

## INFORMATION AND COMMUNICATION TECHNOLOGY

### Division IV

**LEGEND:**

★ - As there is much overlap for the various outcomes, the star indicates ultimate subject area responsibility. Outcomes achieved at earlier grade levels are not repeated in the next level, however it is assumed that the skills are progressive, as in a spiraling curriculum, with simple skills leading to more complex ones and earlier outcomes being maintained and demonstrated at higher levels of efficiency and application.

**On-going** – indicates those outcomes covered in normal day-to-day use of technology

**Illustrative examples are listed by Grade/Subject/Unit, Theme, Topic or Strand if applicable/Example Number if applicable**

e.g. Chem20.1 means Gr. 11, Chemistry 20, Unit 1

English novels have been denoted with abbreviations: i.e., Deathwatch (DW), Jurassic Park (JP), Othello (Ot), Romeo and Juliet (RJ) and To Kill a Mockingbird (TKM)

If there is more than one lesson in any given unit, the lessons will be numbered accordingly, e.g. Eng10RJ-1 and Eng10RJ-2 or Chem20.1-1 and Chem20.1-2

#### Communicating, Inquiring, Decision Making and Problem Solving

| GO #      | SO#  | Specific Outcome   | English   | Math    | Sciences                  | Social Studies                     |
|-----------|--|--|---|---------|---------------------------|------------------------------------|
| <b>C1</b> | <b>Students will access, use and communicate information from a variety of technologies.</b> |  |   |         |                           |                                    |
|           | 4.1  | plan and perform complex searches, using more than one electronic source   | ★<br>Eng20<br>Eng33JP   |         | ★<br>Science10            | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |
|           | 4.2  | select information from appropriate sources, including primary and secondary sources   | ★<br>Eng20  | Math20P | ★<br>Science10<br>Bio30.4 | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |
|           | 4.3  | evaluate and explain the advantages and disadvantages of various search strategies   | ★<br>Eng20  |         | ★<br>Science10            | ★<br>Soc20A<br>Soc30A              |
|           | 4.4  | communicate in a persuasive and engaging manner, through appropriate forms, such as speeches, letters, reports and multimedia presentations, applying information technologies for context, audience and purpose that extend and communicate understanding of complex issues | ★<br>Eng10RJ-1<br>Eng10RJ-2<br>Eng10TKM<br>Eng13DW<br>Eng20<br>Eng33JP<br>Eng33Ot |         | ★<br>Chem20.2             | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |
| <b>C2</b> | <b>Students will seek alternative viewpoints, using information technologies.</b>            |  |   |         |                           |                                    |
|           | 4.1  | consult a wide variety of sources that reflect varied viewpoints on particular topics  | ★<br>Eng33JP  |         | ★<br>Bio30.4              | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |
|           | 4.2  | evaluate the validity of gathered viewpoints against other sources   | ★   |         | ★                         | ★<br>Soc10AB-1<br>Soc30A           |



| GO # | SO#   | Specific Outcome   | English      | Math                              | Sciences                 | Social Studies                     |
|------|---|--|--------------|-----------------------------------|--------------------------|------------------------------------|
| C3   | <b>Students will critically assess information accessed through the use of a variety of technologies.</b> |  |              |                                   |                          |                                    |
|      | 4.1   | assess the authority, reliability and validity of electronically accessed information                              | ★<br>Eng33JP |                                   | ★<br>Science10           | ★<br>Soc10AB-1<br>Soc30A           |
|      | 4.2   | demonstrate discriminatory selection of electronically accessed information that is relevant to a particular topic | ★<br>Eng33JP |                                   | ★<br>Science10           | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |
| C4   | <b>Students will use organizational processes and tools to manage inquiry.</b>                            |  |              |                                   |                          |                                    |
|      | 4.1   | use calendars, time management or project management software to assist in conducting an inquiry                   | ★            |                                   | ★                        | ★                                  |
| C5   | <b>Students will use technology to aid collaboration during inquiry.</b>                                  |  |              |                                   |                          |                                    |
|      | 4.1   | use telecommunications to pose critical questions to experts   | ★            |                                   | ★                        | ★                                  |
|      | 4.2   | participate in a variety of electronic group formats   | ★            | ★                                 | ★                        | ★                                  |
| C6   | <b>Students will use technology to investigate and/or solve problems.</b>                                 |  |              |                                   |                          |                                    |
|      | 4.1   | investigate and solve problems of prediction, calculation and inference  |              | ★<br>Math10P<br>Math20P<br>Math33 | ★<br>Chem20.2<br>Bio30.4 | ★                                  |
|      | 4.2   | investigate and solve problems of organization and manipulation of information                                     |              | ★<br>Math10P<br>Math20P<br>Math33 | ★<br>Chem20.2<br>Bio30.4 | ★                                  |
|      | 4.3   | manipulate data by using charting and graphing technologies in order to test inferences and probabilities          |              | ★<br>Math10P<br>Math20P<br>Math33 | ★<br>Chem20.2            |                                    |
|      | 4.4   | generate new understandings of problematic situations by using some form of technology to facilitate the process   | Eng33Ot      | ★<br>Math33                       | ★<br>Chem20.2            |                                    |
|      | 4.5   | evaluate the appropriateness of the technology used to investigate or solve a problem                              |              | ★<br>Math20P<br>Math33            | ★<br>Chem20.2            | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |



| GO # | SO#  | Specific Outcome   | English               | Math         | Sciences                   | Social Studies                     |
|------|--|--|-----------------------|--------------|----------------------------|------------------------------------|
| C7   | <b>Students will use electronic research techniques to construct personal knowledge and meaning.</b> |  |                       |              |                            |                                    |
|      | 4.1  | use appropriate strategies to locate information to meet personal needs.       | ★<br>Eng20<br>Eng33JP | ★<br>Math20P | ★<br>Science10<br>Chem20.2 | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |
|      | 4.2  | analyze and synthesize information to determine patterns and links among ideas | ★<br>Eng20            | ★<br>Math20P | ★<br>Science10<br>Chem20.2 | ★<br>Soc20A<br>Soc30A              |
|      | 4.3  | use appropriate presentation software to demonstrate personal understandings   | ★                     | ★<br>Math20P | ★<br>Chem20.2              | ★<br>Soc30A                        |



| Foundational Operations, Knowledge and Concepts |   |   |                          |                                   |                            |                |
|---|---|---|--------------------------|-----------------------------------|----------------------------|----------------|
| GO #  | SO#   | Specific Outcome  | English                  | Math                              | Sciences                   | Social Studies |
| F1  | <b>Students will demonstrate an understanding of the nature of technology.</b>                  |   |                          |                                   |                            |                |
|   | 4.1   | assess the strengths and weaknesses of computer simulations in relation to real-world problems  |                          | ★<br>Math10P<br>Math33            | ★<br>Bio30.4               | ★              |
|   | 4.2   | solve mathematical and scientific problems by selecting appropriate technology to perform calculations and experiments  |                          | ★<br>Math10P<br>Math20P<br>Math33 | ★<br>Chem20.2<br>Bio30.4   |                |
|   | 4.3   | apply terminology appropriate to technology in all forms of communication   | ★                        | ★<br>Math10P<br>Math20P<br>Math33 | ★<br>Science10<br>Chem20.2 | ★              |
|   | 4.4   | demonstrate an understanding of the general concepts of computer programming and the algorithms that enable technological devices to perform operations and solve problems                                |                          | ★<br>Math10P<br>Math33            |                            |                |
| F2  | <b>Students will understand the role of technology as it applies to self, work and society.</b> |   |                          |                                   |                            |                |
|   | 4.1   | use technology outside formal classroom settings  | ★<br>Eng10TKM<br>Eng33Ot | ★                                 | ★<br>Science10             | ★<br>Soc20A    |
|   | 4.2   | analyze how technological innovations and creativity affect the economy   |                          | ★<br>Math20P                      | ★                          | ★              |
|   | 4.3   | demonstrate an understanding of new and emerging communication systems  | ★                        | ★<br>Math20P                      | ★                          | ★              |
|   | 4.4   | evaluate possible potential for emerging technologies   |                          |                                   | ★                          | ★              |
|   | 4.5   | demonstrate conservation measures when using technology   | ★                        | ★                                 | ★                          | ★              |
|   | 4.6   | demonstrate an understanding of the basic principles and issues of e-commerce, including such topics as security and privacy, marketing, and implications for governments, businesses and consumers alike |                          |                                   | ★                          | ★              |
|   | 4.7   | use current, reliable information sources from around the world   | ★                        | ★                                 | ★<br>Science10             | ★<br>Soc20A    |
|   | 4.8   | analyze and assess the impact of technology on the global community   |                          | Math20P                           | ★<br>Chem20.2              | ★<br>Soc20A    |



| GO # | SO#   | Specific Outcome   | English   | Math | Sciences       | Social Studies                     |
|------|---|--|---|------|----------------|------------------------------------|
| F3   | <b>Students will demonstrate a moral and ethical approach to the use of technology.</b>                               |  |   |      |                |                                    |
|      | 4.1   | demonstrate an understanding of how changes in technology can benefit or harm society  |   |      | ★<br>Science10 | ★                                  |
|      | 4.2   | record relevant data for acknowledging sources of information and cite sources correctly   | ★<br>Eng20<br>Eng33JP                                       | ★    | ★<br>Science10 | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |
|      | 4.3   | respect ownership and integrity of information   | ★<br>Eng20<br>Eng33JP                                       | ★    | ★<br>Science10 | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |
| F4   | <b>Students will become discerning consumers of mass media and electronic information.</b>                            |  |   |      |                |                                    |
|      | 4.1   | discriminate between style and content in a presentation   | ★<br>Eng10RJ-1<br>Eng10RJ-2<br>Eng10TKM<br>Eng20<br>Eng33Ot | ★    | ★<br>Science10 | ★                                  |
|      | 4.2   | evaluate the influence and results of digital manipulation on our perceptions  | ★   | ★    | ★<br>Science10 | ★                                  |
|      | 4.3   | identify and analyze a variety of factors that affect the authenticity of information derived from mass media and electronic communication   |   |      | Science10      | ★<br>Soc10AB-1<br>Soc20A<br>Soc30A |
| F5   | <b>Students will practise the concepts of ergonomics and safety when using technology.</b>                            |  |   |      |                |                                    |
|      | 4.1   | assess new physical environments with respect to ergonomics  |   |      | ★              |                                    |
|      | 4.2   | identify safety regulations specific to the technology being used  |   |      | ★<br>Science10 |                                    |
| F6   | <b>Students will demonstrate a basic understanding of the operating skills required in a variety of technologies.</b> |  |   |      |                |                                    |
|      | 4.1   | continue to demonstrate the outcomes addressed within the previous divisions. Students interested in pursuing advanced study in areas such as electronics, programming, computer-aided drafting and design (CADD), robotics, and other industrial applications of technology will find opportunities in Career and Technology Studies (CTS) courses. | ★<br>Eng33Ot  | ★    | ★              | ★                                  |



| Processes for Productivity |   |   |   |                                   |                          |                          |
|----------------------------|---|---|---|-----------------------------------|--------------------------|--------------------------|
| GO #                       | SO#   | Specific Outcome  | English   | Math                              | Sciences                 | Social Studies           |
| p1                         | <b>Students will compose, revise and edit text.</b>             |   |   |                                   |                          |                          |
|                            | 4.1   | continue to demonstrate the outcomes achieved in prior grades and course subjects<br><i>NOTE: Gr. 1-9 objectives include font size, font style, layout, headers/footers, columns, table of contents, bibliography, index, as well as tables, graphs, graphics and including information from another document</i> | ★<br>Eng10RJ-1<br>Eng10RJ-2<br>Eng10TKM<br>Eng13DW<br>Eng20 | ★                                 | ★<br>Chem20.2            | ★<br>Soc10AB-1<br>Soc20A |
| p2                         | <b>Students will organize and manipulate data.</b>              |   |   |                                   |                          |                          |
|                            | 4.1   | manipulate and present data through the selection of appropriate tools, such as scientific instrumentation, calculators, databases and/or spreadsheets  |   | ★<br>Math10P<br>Math20P<br>Math33 | ★<br>Chem20.2<br>Bio30.4 |                          |
| p3                         | <b>Students will communicate through multimedia.</b>            |   |   |                                   |                          |                          |
|                            | 4.1   | select and use, independently, multimedia capabilities for presentations in various subject areas   | ★<br>Eng33Ot  | ★                                 | ★<br>Science10           | ★                        |
|                            | 4.2   | support communication with appropriate images, sounds and music   | ★<br>Eng10RJ-1<br>Eng10RJ-2<br>Eng20<br>Eng33Ot             |                                   | ★<br>Science10           | ★                        |
|                            | 4.3   | apply general principles of graphic layout and design to a document in process  | ★<br>Eng10RJ-2<br>Eng10TKM                                  |                                   | ★                        | ★                        |
| p4                         | <b>Students will integrate various applications.</b>            |   |   |                                   |                          |                          |
|                            | 4.1   | integrate a variety of visual and audio information into a document to create a message targeted for a specific audience  | ★   |                                   | ★                        | ★                        |
|                            | 4.2   | apply principles of graphic design to enhance meaning and audience appeal   | ★<br>Eng10RJ-1<br>Eng10RJ-2<br>Eng20                        | Math20P                           | ★                        | ★                        |
|                            | 4.3   | use integrated software effectively and efficiently to reproduce work that incorporates data, graphics and text   |   | Math20P                           | ★<br>Chem20.2            | ★                        |
| p5                         | <b>Students will navigate and create hyperlinked resources.</b> |   |   |                                   |                          |                          |
|                            | 4.1   | create multiple-link documents appropriate to the content of a particular topic   | ★   |                                   | ★                        | ★                        |
|                            | 4.2   | post multiple-link pages on the World Wide Web or on a local or wide area network   | ★   |                                   | ★                        | ★                        |



| GO # | SO#  | Specific Outcome  | English | Math | Sciences | Social Studies |
|------|--|---|---------|------|----------|----------------|
| P6   | <b>Students will use communication technology to interact with others.</b> |   |         |      |          |                |
|      | 4.1  | select and use the appropriate technologies to communicate effectively with a targeted audience | ★       |      |          | ★<br>Soc30A    |

