

## **UPPER SCHOOL INFORMATION TECHNOLOGY**

The upper school at ISL firmly believes in the importance of Information Technology in the education of its students. I.T. is an essential tool that needs to be embedded within the curriculum of all subject areas where and when applicable. The upper school is strongly committed to the use of IT in both teaching and learning. Students need to be shown how and when to use this technology effectively so that they may benefit from the enhanced communication and learning opportunities that IT provides when appropriately used. In developing a rationale, the upper school has made reference to the International Society for Technology in Education standards (ISTE) as a guide. The standards are divided into six categories and teachers are encouraged to refer to these standards when planning IT based tasks for their classes.

### **School Community**

The development of an IT Culture at ISL is essential to the integration of IT use in all subjects. The school's network, e-mail server and Community Web Pages are an integral part of this culture.

The school's network allows for all students and teachers to have private storage space for their files. Space is also provided through individual course folders and the exchange folder, allowing for teachers to establish controlled access for their students as well as efficient distribution of assignments and collection of completed work. The network allows students to work together on assignments encouraging group work. The work saved on the network provides every student and every class with a digital portfolio of student progress. The network is reliable, safe and respects the privacy and data integrity of individuals and their work. The school's VPN (Virtual Proprietary Network) allows students and teachers access to all their files from home as well.

The school's e-mail server is used extensively to promote efficient work completion and communication. All students in the Middle and Upper school have a school e-mail account and are encouraged to use it in completing their work, corresponding with their teachers and remaining current on school news, events and deadlines.

The school's Community Web Pages are used to communicate regular news, events and deadlines to both students and parents. It is also a place where student achievement is celebrated and work is displayed.

I.T. is used throughout the school on a daily basis in all subject areas when and where deemed pertinent.

### **ISTE Technology Foundation Standards for Students**

#### **1. Basic operations and concepts**

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology.

#### **2. Social, ethical, and human issues**

- Students understand the ethical, cultural, and societal issues related to technology.
- Students practice responsible use of technology systems, information, and software.
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

#### **3. Technology productivity tools**

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

#### **4. Technology communications tools**

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

#### **5. Technology research tools**

- Students use technology to locate, evaluate, and collect information from a variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

#### **6. Technology problem-solving and decision-making tools**

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

## Subject Areas

### Art

All art classes use a variety of search programs related to the art style or technique being covered. A number of students employ computer-assisted drawings as part of their portfolio. When and where a computer can be used both to help explore a concept or in fact to make art, it is used. Graphic programs primarily used are Painter Classic and the Paint program in Windows. The more experienced students also use Photoshop.

### English

Students primarily use word processing, and on-line research tools. In some classes, multimedia sites are often accessed in the study of a speech or a poem being read to allow students to listen to the original as they read the text. Recently, several classes in grades 9 and 11 have experimented with digital video production. Students are also encouraged to produce charts, brochures and PowerPoint (slide) presentations.

### English as a Second language (ESL) and ESL Support

Students practice extensive use of word processing tools both in the classroom and in the computer lab. Students are encouraged to write drafts using Alphasmart keyboards. These drafts are then uploaded to the network to be completed during a weekly class-visit to one of the computer labs. Computers are also used for vocabulary and grammar practice. They also use them for research for their class assignments. Students regularly access ESL sites to do various ESL activities such as games for vocabulary or grammar.

### Foreign Language

All language classes use word processing for their assignments. Students are also encouraged to use Desk Top Publishing software to publish regular newspapers. Students practice extensive use of digital still and video production camera for picture stories and news reporting. Recently the school has acquired "Euro-Talk" for class visits to the computer labs that facilitate a language lab approach to language learning and reinforcement. Extensive use of web pages is encouraged for grammar, vocabulary and comprehension exercises as well as literary criticism, biographies and research. Regular class information is made available on the school's Community Web Pages. Regular use of music interpretation is encouraged through the 'Song of the Month which is posted to the schools Community web Pages. Computers are also used to produce on-line exercises and tests allowing the students work on at their own speed. There is an occasional video or musical program.

In some cases, students in Foreign Language have used spreadsheets when student surveys are performed. Multimedia presentations by students and teacher are done in a lab setting and watched in class using a projector. In French IB students use the Media-server in the computer lab to first view related videos individually using headphones and teacher-developed materials. Students then prepared themselves in writing for the lesson in the classroom where the video situations were discussed. Lessons deal with current social, political and cultural themes relevant to the students.

### Mathematics

Word processing is used in the presentation and write up of investigation, portfolio and project work.

Math classes regularly use spreadsheets and graphing facilities. Excel is applied to create histograms, scatter plots, pie graphs, and segmented bar graphs, while also calculating mean, median, inter quartile range, in order to analyse surveys that they have recently given to samples of students.

Maths websites are used as teaching aid. Maths classes also exercise extensive use of graphing calculators (GDC) and overhead projectors in class. The graphing calculator is used as an exploration device to allow students to quickly view properties and relationships, and then compose conjectures about a situation that they will try to mathematically justify. The GDC is also used for graphing functions, solving equations, calculus, statistical analysis and manipulation of matrices.

Next year Geometer's Sketchpad will be used to extend these techniques further into the high school programs. Teachers frequently use an equation editor in preparation of lessons and tests.

**Music**

In addition to the regular use of computer as a PC, other applications are widely applied. Music keyboard and computer are used for composing and adapting parts for instrumental use using the Encore Program.

Music Ace educational music software is used for teaching Music Theory.

A variety of digital medium are used to record student work allowing them both listen to and assess their work. Both video cameras for and Mini-disks are used.

Electronic keyboards are used for teaching music reading and composition.

Pre-recorded CD's, cassette tapes, and videos are also used.

**Physical Education**

The PE Department use the school file server to store and use documents, templates, school and other logos, Clip art, and list serves of email groups. All communication with coaches, student athletes and officials and other schools is via email. This year ISL was the first NEICS School to have electronic entries for a sports tournament. The digital camera is used for photos to keep on the server and show at sports potlucks (swimming and U-14 BB). A CD is being made for all the swimmers of the digital photos taken at NECIS swimming. In the Middle School, teachers used student directed Internet searches to learn about rules and skills. Music and video are used for assessment of dances and the school projector for peer assessments.

**Science**

Word processing and desktop publishing software is used for assignments.

Spreadsheet software is used for data manipulation.

The Internet is used for student research and for subject-specific web sites. Science classes use laptops and data collection probes extensively throughout the curriculum to collect data from experiments. Graphing calculators as well as Data-Studio software are used manipulate and present this data in a variety of ways. Desktop computers in the computer labs and science resource room are made available to all students to continue work started in the science labs. LCD projector with VCR and laptop are used for classroom viewing. Microscope video camera and projector are used.

Teachers use Grade book programs, Databases (e.g., Access, FileMaker Pro) and Photoshop. Subject-specific CDs and DVDs are used. All science handouts and assignments are done on computers.

**Social Studies**

In all classes, word processing is used in preparation of drafts and final assignments. Desktop publishing software is also used for journal and newspaper layout assignments.

Instructor selected websites are relied upon to find, transmute and critique material for a particular topic. Specific websites are also used to produce graphics that are then explained in a subsequent class either orally or in written form.

For IB classes the use of The Internet is invaluable for Historical Investigation (2,000 word coursework).

Digital projectors are also used in the viewing of videos and DVDs. Students also use these tools together with PowerPoint to make presentations of their work to the class. Video recording is also used record student presentations and aid in their assessment.

On-line resources are used extensively to research topics. These resources include both library holdings as well as the World Wide Web.

Spreadsheets are used to illustrate data relationships in the form of graphs and charts.

(May 20, 2003)

## Upper School Technology Standards & Benchmarks

### 1. Students will understand the basic operations and concepts of Technology

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| Students demonstrate a sound understanding of the nature and operation of technology systems |
| Students are proficient in the use of technology.  |

### 2. Students will understand the social, ethical, and human issues of Technology

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| Students understand the ethical, cultural, and societal issues related to technology.  |
| Students practice responsible use of technology systems, information, and software.  |
| Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity. |

### 3. Students will use Technology tools to increase productivity

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| Students use technology tools to enhance learning, increase productivity, and promote creativity.  |
| Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works. |

### 4. Students will use Technology tools for communication

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| Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences      |
| Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences. |

### 5. Students will understand the basic operations and concepts of Technology

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| Students use technology to locate, evaluate, and collect information from a variety of sources.                                       |
| Students use technology tools to process data and report results.   |
| Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks. |

### 6. Students will use Technology as tools for problem-solving and decision-making

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| Students use technology resources for solving problems and making informed decisions.               |
| Students employ technology in the development of strategies for solving problems in the real world. |