

<b>AiTLE + HKACE : Drafting of Through-trained Teaching Schedule for Computer Subject of Primary &amp; Junior Secondary</b>
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**Topics:**

**1. Attitude**

**(a) Social networking website**

- ❖ Characteristics of Social Networking
- ❖ Types of Social Networking
  - ❖ Communication
  - ❖ Blog
  - ❖ Video
- ❖ Pros and Cons of Social Networking

**(b) Copyright, CC, plagiarism**

- ❖ Introduction to Intellectual Property
  - ❖ Trademark
  - ❖ Patents
  - ❖ Design
  - ❖ Copyright
- ❖ Importance of Copyright
- ❖ Copyright Law in Hong Kong
- ❖ Understand the basic ideas of Creative Commons (CC)
- ❖ Attention to be paid when using CC licensed work
- ❖ Registering material as CC
- ❖ Introduction to Plagiarism
- ❖ Consequence of Plagiarism
- ❖ Develop the habit of acknowledging the source of information

**(c) Cyberbullying**

- ❖ Basic Idea of Cyberbullying
- ❖ Example of Cyberbullying
  - ❖ In Social Media
  - ❖ In Gaming
  - ❖ In forum/video sharing site by commenting
- ❖ Consequence of Cyberbullying
- ❖ Prevention from Cyberbullying
- ❖ Signs of Cyberbullying
  - ❖ Signs a Child is Being Bullied
  - ❖ Signs a Child is Bullying Others

**(d) Internet addict**

- ❖ Type of Internet addiction
- ❖ Addict to online entertainments
  - ❖ online gaming

- ✧ online video
- ❖ Internet gambling
- ❖ Cybersex and pornography
  - ✧ online chat
- ❖ Cyber-relationships
  - ✧ Virtual community
  - ✧ Forum/ discussion group
- ❖ Consequence of Internet Addicts

**(e) Privacy**

- ❖ Introduction to Privacy
- ❖ Basic Idea of Personal Data (Privacy) Ordinance
- ❖ Consequence of Privacy
  - ✧ Cases Study
- ❖ Example of Privacy
- ❖ Ways to protect Privacy
- ❖ Understanding of Personal Data Protection
  - ✧ Physical loss of data / storage
    - ☆ Encryption of portable storage device
  - ✧ Improper disposal of obsolete storage devices
    - ☆ Wipe software
    - ☆ Physically damage the device before disposal
  - ✧ Insecure transmission of data over the network
  - ✧ Avoid putting sensitive personal data on web server
  - ✧ Providing excessive data to companies
  - ✧ Overexposed information on the Internet / social networking platforms

**(f) Work & Health issue**

- ❖ Change of nature of work with ICT
- ❖ Potential hazard of use of ICT tools
  - ✧ Sickness
    - ☆ Reasons
- ❖ Solution to the hazards
  - ✧ Rest
  - ✧ Equipments
    - ☆ Ergonomic design
  - ✧ Law and Regulation
    - ☆ Do's and Don'ts for companies

**(g) Netiquette**

- ❖ Basic idea of Netiquette
- ❖ Guidelines of Netiquette
  - ✧ for email
  - ✧ for discussion forum

- ✧ for social network
- ✧ for Wiki like web pages
- ❖ Digital Citizenship
- ❖ Culture of Sharing
  - ✧ Where to share
  - ✧ How to share
- ❖ Languages
  - ✧ Use gentle language for commentaries
  - ✧ avoid using foul languages

**(h) Green IT**

- ❖ Introduction to Green IT
- ❖ Importance of Green IT
  - ✧ Electronic Waste
  - ✧ Energy Efficiency
  - ✧ Replacing hardcopy with softcopy
- ❖ Ways of Green IT
  - ✧ Role of Government
  - ✧ Role of Industry
  - ✧ Role of citizen
- ❖ Event, e.g., Green IT Day

**(i) Digital Divide**

- ❖ Introduction to Digital Divide
- ❖ Occurrence of Digital Divide
- ❖ Consequence of Digital Divide
- ❖ Overcome of Digital Divide
  - ✧ Government
  - ✧ NGO
  - ✧ School

**2. Skill**

**(a) Switch on and off computer**

- ❖ Power on a computer
  - ✧ Power button
- ❖ Log in
- ❖ Log out
  - ✧ Importance of logging out after use
- ❖ Shut down a computer
  - ✧ Proper way of shutting down a computer
  - ✧ Restarting a computer
- ❖ Handling Special case
  - ✧ Computer cannot power on
  - ✧ Computer not responding

**(b) Skills on manipulate input devices**

- ❖ Posture (Chair, Table, Body, Keyboard & Monitor)
- ❖ Ergonomics
- ❖ Typewriter and Keyboard Layouts (QWERTY, WPM)
- ❖ Index fingers
- ❖ Home keys
- ❖ Drills on common words
- ❖ The use of Shift Key for capitals headings
- ❖ Number keys
- ❖ Punctuation & Symbol Keys
- ❖ Typing skills
- ❖ Relaxing Exercise

**(c) Basic OS operation**

- ❖ Login to computer
- ❖ Using Windows Start > All program
- ❖ Use of File Manager
- ❖ Use of Mouse
  - ❖ Left-click
  - ❖ Right-click
  - ❖ Double-click
- ❖ Common functions
  - ❖ Copy & Paste
  - ❖ Paste Special
  - ❖ Undo and re-do
  - ❖ Find & replace
- ❖ Use of Windows
  - ❖ Buttons
    - ☆ Close Window button
    - ☆ Maximize / Restore button
    - ☆ Minimize button
  - ❖ Resizing Windows
  - ❖ Organizing Windows
- ❖ Printing
- ❖ Screen Capture
  - ❖ Print Screen
  - ❖ snipping tools
- ❖ Common Short Cut

**(d) File & folder handling, compression**

- ❖ Basic File Management Concepts
  - ❖ Drive, Folder and Files
- ❖ File Management
  - ❖ Naming Conventions
  - ❖ Naming Restrictions (no special symbols, 255 char long)

- ◇ Select Files
  - ☆ continuous selection, non-continuous selection, select all files
- ◇ Rename a file
- ◇ Copy, Move, Delete
- ◇ File Attribute
  - ☆ Read-Only
  - ☆ Hidden and System
  - ☆ Archive
  - ☆ Encryption
- ❖ Folder Management
  - ◇ Folder Structure
  - ◇ Create a folder
  - ◇ Rename a folder
  - ◇ Copy, Move, Delete
  - ◇ Drag and drop
- ❖ Recycle Bin
  - ◇ Recover Deleted files
  - ◇ Empty Recycle Bin
  - ◇ Size Setting
- ❖ Searching for files (P5)
- ❖ Batch processing by third party program
- ❖ File Compression
  - ◇ Advantage of file compression
    - ☆ save storage space
    - ☆ transmission speed
    - ☆ backup data
    - ☆ Split large file into several small files
- ❖ Different File Compression Type (such as .zip, .rar, 7z,...)
- ❖ Compression Software
- ❖ Compress and Decompress the files
- ❖ Add Password

**(e) School based intranet and IT facilities adaption**

- ❖ Login to School Intranet
  - ◇ URL of school Intranet & Username
  - ◇ Default Password & Password change
    - ☆ Good Password Practice
- ❖ Functionality of Intranet
  - ◇ Resources that can download from school Intranet
  - ◇ Email
  - ◇ Notice
  - ◇ Survey

- ◇ Calendar
- ◇ eClassroom
- ❖ School-based IT facilities
  - ◇ WiFi Connection
  - ◇ Photocopier
  - ◇ Other e-platform login and basic usage
    - ☆ HKEDCITY login
    - ☆ Survey (ESDA)
    - ☆ Student login in school computers
    - ☆ Library system
- ❖ Application and login of Public Resources
  - ◇ how application affect password reset
- (f) Chinese Character input**
  - ❖ How computer store Chinese Character
    - ◇ Double-byte
    - ◇ 內碼
  - ❖ Type of Chinese Character Input Method
    - ◇ 手寫 / 語音 / 鍵盤輸入
      - ☆ 鍵盤輸入：形碼 / 音碼
    - ◇ 單字輸入、詞組輸入
  - ❖ How to select Chinese Character Input Method that suit you
  - ❖ New Way of Chinese Character Input (Yahoo, Google)
  - ❖ Chinese Character Input Method in detail
    - ◇ Basic parts of the Input Method
      - ☆ 倉頡、速成：字根／輔助字形
      - ☆ 縱橫、九方：筆形
      - ☆ 拼音、注音：音
    - ◇ Basic Rules of Input Method
      - ☆ Single Characters
      - ☆ Phrases (if applicable)
    - ◇ How to type punctuation mark (標點符號)
    - ◇ Setting of Chinese Character Input Method
    - ◇ Ways to become a speed typist
- (g) Word processing**
  - ❖ Function of Word
    - ◇ When use word
  - ❖ Word Interface
    - ◇ Input text to word
    - ◇ Know toolbar of word
  - ❖ Formatting
    - ◇ Font type, size, face, color

- ✧ Paragraph alignment
- ✧ Indent
- ✧ Bullet and numbering
- ✧ Border and pattern
- ✧ Line spacing
- ❖ Word Art
- ❖ Table
  - ✧ Row height and column width
  - ✧ merge and split cell(s)
  - ✧ border and pattern of table
- ❖ Inserting object to Word
  - ✧ insert graphic
  - ✧ insert clipart
  - ✧ insert smartart
  - ✧ insert textbox / frames
  - ✧ Setting text wrap for objects
- ❖ Page setup
  - ✧ orientation
  - ✧ page number
  - ✧ header & footer
- ❖ Spell check and grammar check
- ❖ Trad Chi and Simp Chi conversion
- ❖ Advance function
  - ✧ hyperlinks
  - ✧ word count
  - ✧ Mail merge
  - ✧ Bookmark
  - ✧ Column

**(h) Spreadsheet**

- ❖ Introduction to Spreadsheets
- ❖ Row, column
- ❖ Basic Operations
- ❖ Formatting
- ❖ Insert, delete
- ❖ Functions
  - ✧ Sum, average
- ❖ Creating Charts
- ❖ AutoFill
- ❖ Data types
- ❖ print
  - ✧ Print area
  - ✧ Page layout view

- ❖ Formula and Cell Reference
- ❖ Relative address, absolute address
- ❖ Functions
  - ❖ Sum, average, max, min, count, counta, countif, rank, if , left, right, vlookup, len
- ❖ Chart
  - ❖ Insert chart, format chart, insert chart to power point
- ❖ Data Manipulation Techniques
  - ❖ Search, replace, filter, sorting, conditional formatting

**(i) Presentation software**

- ❖ Formatting (Text, Images)
- ❖ Animation
  - ❖ Sequence, actions (start, auto start) and effects
  - ❖ Bullet point animations
- ❖ Hyperlinks
- ❖ Transition
- ❖ Theme Selection
- ❖ Insert / Edit
  - ❖ Pictures, Video , Audio
  - ❖ Arrow, Shapes, Lines (Layers), Charts
  - ❖ Office Suites objects (e.g. word, excel...)
  - ❖ Colors
- ❖ Printing (Handouts , individual slide)
- ❖ Handling of time conflict of animation and transition
- ❖ Presentation skills in writing a PowerPoint slide.
  - ❖ (For example, less text, more images, keywords, etc...)
- ❖ Add notes for speakers and printing

**(j) Databases**

- ❖ Database Concept
  - ❖ Primary key, data type, data hierarchy(field, record, table, database)
- ❖ Using the Database Management System (DBMS)
  - ❖ examples
- ❖ Basic operations
  - ❖ Add, delete, edit, Sort, filter
- ❖ Forms
  - ❖ Design view, wizard view
- ❖ Reports
  - ❖ Design view, wizard view
- ❖ Queries
  - ❖ Design view, wizard view

**(k) Image editing**



- ❖ Function of Image Editing Software
  - ❖ When use Image Editing software
- ❖ Know different type of Image Editing software
- ❖ Know different type of Image file type
- ❖ Attributes on images
  - ❖ resolution
  - ❖ color depth (number of colors)
- ❖ Image editing skills
  - ❖ calculation on uncompressed image file size
- ❖ Share image
  - ❖ skill
  - ❖ attitude
- ❖ Image editing skills
  - ❖ Change Image size
  - ❖ selection skill
  - ❖ Crop Image
  - ❖ Special Effect to Image
  - ❖ Merge Image
  - ❖ Add text to image

**(l) Video editing**

- ❖ Import/Export Video
  - ❖ Video properties (fps, frame size, codec (MP4, MPEG2, H.264), compression\*\*, file size)
- ❖ Timeline
  - ❖ Track (Layers)
    - ☆ Transitions (Fade-in/out)
- ❖ Editing
  - ❖ Trim, Cut/Paste
  - ❖ Effects (Color, Audio)
  - ❖ Title / Sub-title / Captions / Credits
  - ❖ add background music
- ❖ Rendering
- ❖ Storyboard

**(m) Audio editing**

- ❖ Concept
  - ❖ Stereo vs Mono
  - ❖ MIDI vs WAV
  - ❖ Digital vs Analog
  - ❖ Different Audio File Format
- ❖ Source of Audio
  - ❖ Recording Original Audio
  - ❖ Import Existing Audio

- ❖ Hardware
  - ✧ Sound card
  - ✧ Speaker / headphone
  - ✧ Microphone
- ❖ Software
  - ✧ Audio editors
  - ✧ CD / DVD recording software
- ❖ Modifying the Track
  - ✧ Select, copy, cut and paste
  - ✧ Fade in / Out
  - ✧ Transitions
  - ✧ Time / Pitch
  - ✧ Volume
  - ✧ Noise Removal
  - ✧ Normalize
  - ✧ Reverberation and echo
  - ✧ Equalization
- ❖ Manipulating the Different Tracks
  - ✧ Add and Remove a Track
  - ✧ Looping a Track
  - ✧ Moving a Track
  - ✧ Adjust the volume of a Track

**(n) Web authoring**

- ❖ Objective of website
  - ✧ Content
  - ✧ Design factor
  - ✧ Characteristics of a successful website
- ❖ Web Authoring tools
  - ✧ Text Editor
  - ✧ Web authoring tools
  - ✧ Online Web authoring
- ❖ Use of Web Authoring tools
  - ✧ Editing
    - ☆ Page properties
    - ☆ Format
    - ☆ Insert object (image, table, hyperlinks, audio, video)
    - ☆ Form
  - ✧ Testing
  - ✧ Publishing

**(o) Animation production**

- ❖ Different types of animation
  - ✧ Frame by frame (Practical)

- ◇ Tweening (Practical)
    - ☆ [ Shape / Motion / Classical] – Flash Only?
- ❖ Theory
  - ◇ Characteristics
  - ◇ Background of Animations
- ❖ Timeline
  - ◇ Layers
  - ◇ Frame, Keyframe, Blank Keyframe
  - ◇ Fps / frame size
- ❖ Insert / Edit
  - ◇ Images, audios and graphics.
  - ◇ Shapes Layers
  - ◇ Break Apart / Combination
- ❖ File types
  - ◇ applications

**(p) Programming**

- ❖ Introduction to Algorithm Design
- ❖ Identifying Inputs and Outputs of a Problem
- ❖ Basics of Constants and Variables in Computer Programming
- ❖ Selection of Appropriate Data Types
- ❖ Input Statements, Output
- ❖ Statements and Assignment Statements
- ❖ Calculation
- ❖ Basic Control Structures
  - ◇ Sequence
  - ◇ Selection
  - ◇ Iteration
- ❖ Tracing and Testing Algorithms

**(q) Information search, analysis**

- ❖ Use of search engine
  - ◇ keywords
  - ◇ operators
  - ◇ wildcard operator
  - ◇ quotation marks
- ❖ Skills on narrowing down unnecessary answers
  - ◇ combination of keywords
  - ◇ limiting criteria
    - ☆ country
    - ☆ time
- ❖ file type
- ❖ Analyzing the validity of data
  - ◇ Authority of the publisher

- ☆ Government
- ☆ NGO
- ☆ Newspaper
- ☆ Is Wikipedia a reliable source of information?
- ◇ Publishing date
- ◇ Do not rely on a single source of information

**(r) Webmail**

- ❖ Register a webmail account
- ❖ Compose
- ❖ Reply
- ❖ CC, BCC
- ❖ Subject
- ❖ Attachment

**(s) Wireless connection (WiFi)**

- ❖ Principal of Wireless connection
  - ◇ Wide area - 3G, 4G, HSDPA
  - ◇ Mid-range - WiFi
  - ◇ Short range - Bluetooth
- ❖ Brief introduction on IEEE Standard
  - ◇ IEEE 802.11a/b/g/n/ac
  - ◇ Frequency used
  - ◇ Channels
- ❖ Equipment
  - ◇ Wireless Network Card
  - ◇ WiFi AP
    - ☆ Soft AP / Personal AP
  - ◇ Broadband Router
- ❖ Way to connect to WiFi
  - ◇ SSID
  - ◇ Encryption
  - ◇ Sample steps on connection to broadband router
- ❖ Factors affecting the WiFi quality
  - ◇ Microwave oven
  - ◇ Metal cabinets
  - ◇ Motor / EM wave
  - ◇ Other wireless devices
  - ◇ Thickness of wall and how many walls need to penetrate

**(t) Wireless security implementation**

- ❖ Security Threats of using WiFi
  - ◇ Data loss
  - ◇ Hacking
  - ◇ Man-in-the-middle attack

- ❖ WiFi Security Measures
  - ✧ Change default password of the WiFi AP / Router
  - ✧ Change the default SSID
  - ✧ Disabling SSID broadcast
  - ✧ MAC address filtering
  - ✧ Encryption
    - ☆ WEP (Not secure)
    - ☆ WPA
    - ☆ WPA2
  - ✧ Connect to trustworthy SSID only
    - ☆ Do not auto-connect to open WiFi in public
- ❖ Sample steps on setting security rules in WiFi AP
- (u) Cloud services**
  - ❖ Concepts of Cloud Computing
    - ✧ The goal of cloud computing is to allow users to take benefit from technologies without the need for deep knowledge about or expertise with each one of them.
  - ❖ Existing Cloud Services for students
    - ✧ Google docs / Office 365 ⇒ Office Suite
    - ✧ Making Survey
    - ✧ File saving
      - ☆ Dropbox, One drive, Google Drive
    - ✧ Map
    - ✧ Google Translate
  - ❖ Characteristics of Cloud Computing
    - ✧ Virtualization
    - ✧ Reliability
    - ✧ Scalability
    - ✧ Maintenance
  - ❖ Other Issues
    - ✧ Security
    - ✧ Privacy
    - ✧ File Attribute
      - ☆ Read-Only
      - ☆ Hidden and System
      - ☆ Archive
      - ☆ Encryption
- (v) Utility Programs**
  - ❖ What is Utility Programs
  - ❖ Function of different Utility Program
  - ❖ Wise way to use the Utility Program

### 3. Knowledge

**(a) Information processing and presentation**

- ❖ Data vs information
  - ❖ File size
    - ☆ bBKMGT
- ❖ File format
  - ❖ JPG vs GIF
- ❖ IPO, GIGO
  - ❖ Validation in web forms
  - ❖ check digit
- ❖ Effective Presentation
  - ❖ Planning
  - ❖ Selecting Information
  - ❖ Organizing Information
  - ❖ Criteria for effective Presentation

**(b) Computer system**

- ❖ Basic Computer Component
  - ❖ Hardware
    - ☆ Case
    - ☆ Keyboard
    - ☆ Mouse
    - ☆ Monitor
    - ☆ Speakers
    - ☆ Printer
  - ❖ Software
    - ❖ OS
    - ❖ Application Software
      - ☆ Office Suite
      - ☆ Browser
- ❖ More about Computer Component
  - ❖ Inside System Case
    - ☆ Motherboard
    - ☆ BUS
    - ☆ Slots (CPU Slots, RAM Slots, Expansion Slots, Disk Drive Slots)
    - ☆ Ports (PS/2, USB, VGA, Audio etc)
    - ☆ CPU
    - ☆ Main Memory
      - RAM
      - ROM
      - Cache
  - ❖ Input Device
    - ☆ Keyboard

- ☆ Pointing Device
  - Mouse
  - Track Ball
  - Touch Pad & Track point
  - Joysticks (wired & wireless)
  - Writing Board
  - Touch Screen
- ☆ Scanner
- ☆ OMR
- ☆ Microphone
- ☆ Web CAM, Digital Camera, Digital Video Recorder
- ◇ Output Devices
  - ☆ Monitors
  - ☆ Projectors
  - ☆ Printers
  - ☆ Speakers
- ◇ Storage Devices
  - ☆ Storage basic (principles & mechanism)
  - ☆ Magnetic Storage
  - ☆ Optical Storage
  - ☆ Flash Storage
  - ☆ Network Storage
- ◇ Softwares
  - ☆ System Softwares
    - OS
    - Utility Software
    - Drivers
  - ☆ Application Softwares
    - Office Application
    - Communication Software
    - Multimedia Software
    - Entertainment Software
    - Educational Software
- ◇ Computer Types
  - ☆ Computer Type
    - Personal Computer
    - Mainframe
    - Super Computer
- ◇ Virtualization
- ◇ Interaction of different computer types
  - ☆ Single / Multiple User
  - ☆ Batch Processing / Real Time Processing

**(c) Networking & Internet Application**

- ❖ Network Connecting Device
  - ❖ Wired
    - ☆ Switch, Router
    - ☆ Network Cable
      - CAT.5/6, Fibre
  - ❖ Wireless
    - ☆ Access Point
- ❖ Network Security
  - ❖ Device security (admin password, default SSID)
  - ❖ Firewall
  - ❖ Anti-virus
- ❖ Importance of Unique identity in network
  - ❖ IP address
- ❖ What is Internet
  - ❖ WWW
  - ❖ Internet services
    - ☆ Email
    - ☆ File transfer

**(d) Programming**

- ❖ Input
- ❖ Output
- ❖ Variable
- ❖ Value assignment
- ❖ Calculation
- ❖ Condition
- ❖ Iteration
- ❖ Looping

**(e) Social Implication**

- ❖ Security
  - ❖ Backup
  - ❖ Anti-Virus
  - ❖ Firewall
  - ❖ Encryption
- ❖ Data validity
  - ❖ HKID Check digit
  - ❖ Captcha
- ❖ Threats & Security on the Internet
  - ❖ Computer Virus
  - ❖ Worms
  - ❖ Trojan
- ❖ Cyber crime



- ◇ 裸聊
- ◇ Social Engineering
- ◇ Cyberbullying
- ❖ Application of IT to daily life
- ❖ Work & health issue
  - ◇ Job changes
    - ☆ Personnel involved (job changes)
  - ◇ Ergonomics
- ❖ Copyright
- ❖ Privacy