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Computer Science

Grade 2

1. Students will identify information technology tools that are useful in their daily lives
    a. Identify common external parts of personal computer system
    b. Can use and understand purpose of common PC peripheral devices.
    c. Can understand purpose and use of basic functions of word processing and paint software.
    d. Identify a web browser and use it to locate a specific site on the World Wide Web.
    e. Recognize a spreadsheet and understand that it is good for manipulating numeric data.
2. Students will consistently demonstrate healthy and ergonomically safe use of IT tools.
    a. Demonstrate proper posture when using a computer.
3. Students will use a variety of information technology tools, applications, and production processes.

    Use basic applications to produce a finished product:

    a. Word processor: enter text, center text, insert clip-art, insert word-art
    b. Spreadsheet: enter numbers into cells, enter simple arithmetic formulae into cells.
    c. Paint: create simple graphics using brush and shapes
    d. Browser: locate a Web site by entering its URL.
    e. Presentations: create effective presentation slides with text, images, hyperlinks, transitions.
4. Students will apply problem-solving skills to meet information needs.
    a. Can create simple budget models using spreadsheets.
5. Students will apply a variety of IT tools for research.
    a. Can extract desired information from a Web page
6. Students will demonstrate the ability to manage information and resources.
    a. Able to locate, open, and save files in a file system.
7. Students will evaluate the impact of IT tools on the workplace, on individuals, and on society.

a. Understand that computers allow work to be accomplished faster and save human effort in a variety of fields.

8. Students will demonstrate an awareness of the protocols and ethics involved in the use of IT.
    a. Understand that using someone else's work without permission is bad.
    b. Understand that words and images belong to the person who created them.
9. Students will demonstrate an understanding of media to convey and enhance communication.
    a. Aware of the usefulness of word processors and paint software for communication of ideas with others.
10. Students will demonstrate familiarity and fluency with data entry technologies.
    a. Can locate letter keys and basic function keys (ENTER, SHIFT, DEL, etc.) on keyboard.
    b. Can use two hands when typing.
    c. Can use left mouse button to select, drag, and to navigate menus.

Grade 5

11. Students will identify information technology tools that are useful in their daily lives
    a. Identify main circuit boards and internal components of a personal computer.
    b. Identify input and output devices and their functions.
    c. Understand the difference between hardware and software.
    d. Identify PC components that may affect a purchase decision and can compare some system specifications.
    e. Understand that computers can share resources over a local area network and the World Wide Web.
12. Students will consistently demonstrate healthy and ergonomically safe use of IT tools.
    a. Demonstrate proper posture and hand position when typing.
    b. Maintain healthy distance from monitor screen.
    c. Understand the importance of taking regular visual and physical breaks from computer work
13. Students will use a variety of information technology tools, applications, and production processes.

    Use a variety of applications to produce visually appealing and informative products:

    a. Word processor: edit, copy, cut, paste, move text and graphic elements; insert graphics, text boxes, tables, columns; use spell checker; identify and use toolbars, menus, drag-drop to access commands.

b. Spreadsheet: entry of simple formulae, use of basic statistical functions, production of graphs from data.

c. Paint: identify and use all tools, resize images and drawing page.

d. Image manipulation: basic color adjustment, fill, edit colors, selection techniques.

e. Desktop publisher: understand DTP capabilities to more easily align text/ graphic elements and control page layout.

f. Presentations: create effective presentation slides with text, images, hyperlinks, transitions.

g. Video Editing: Create simple video presentations.

14. Students will apply problem-solving skills to meet information needs.

    a. Can use decision-making capabilities of spreadsheets to solve simple story problems.

    b. Can create interactive multimedia presentations with multiple but logical navigation paths

15. Students will apply a variety of IT tools for research.

    a. Can use keywords with search engines to find information on the WWW.

16. Students will demonstrate the ability to manage information and resources.

    a. Can navigate local and network folders and other resources.

    b. Can locate, open, and save files from network locations.

17. Students will evaluate the impact of IT tools on the workplace, on individuals, and on society.

    a. Are aware of a variety of careers in Information Technology.

    b. Understand the use of presentations to educate and/or influence people.

18. Students will demonstrate an awareness of the protocols and ethics involved in the use of IT.

    a. Understand what constitutes plagiarism in a networked environment.

    b. Understand that the work of other people stored on a computer is private and should not be looked at or used without permission.

19. Students will demonstrate an understanding of media to convey and enhance communication.

    a. Aware of the intended audience of a presentation and what content and format is appropriate for that audience.

20. Students will demonstrate familiarity and fluency with data entry technologies.

    a. Familiar with location of home-row, number pad, punctuation, and main function keys on the keyboard.

b. Can type with some speed and efficiency.

c. Can use right mouse button to access context menus.

Grade 8

21. Students will identify information technology tools that are useful in their daily lives

    a. Understand that image editing software can change and/or modify graphic images.

    b. Understand that a database can store and query data for specific purposes in many fields.

    c. Identify many of the internal and external parts of a personal computer system.

    d. Identify and understand the purposes of Application, System, and Utility software.

    e. Identify common categories of Application software.

    f. Identify the major parts of a computer network, including servers, workstations, cables

22. Students will consistently demonstrate healthy and ergonomically safe use of IT tools.

    a. Identify correct and incorrect posture

    b. Identify some health problems that can ensue from incorrect posture and computer use.

    c. Identify environmental aspects of ergonomic computer use, e.g. lighting, furniture, position of computer components.

    d. Understand and demonstrate proper care in the use of personal computers.

23. Students will use a variety of information technology tools, applications, and production processes.

    Use a variety of applications to produce visually appealing and informative products:

    a. Word processor: tabs, adjust margins, use spell check and thesaurus, fonts, sizes

    b. Understand how spreadsheets can be used in other subjects, graphing for better understanding of data

    c. Database: understand uses and capabilities vs. spreadsheet. Create flat table, create queries, reports, perform data validation.

    d. Graphics: create original graphics in an advanced paint application.

    e. Desktop Publisher: produce informative publications with complex layouts.

    f. Presentations: animations, transitions, consistent color schemes, embedded multimedia, outline generation. Understand use of presentation package as a tool for communication.

g. Web page design: use HTML to create a readable, informative page with links to WWW, text, images, colors. Understand basic design concepts.

h. Programming: produce programs to accomplish simple tasks.

24. Students will apply problem-solving skills to meet information needs.

    a. Create data models to perform simple goal-seeking analysis using spreadsheets

    b. Can use appropriate tools and HTML codes to implement a desired Web page design.

    c. Can use available tools to recreate a given graphics design using image manipulation software.

    d. Translate a problem statement into a correct computer program using an appropriate computer language.

25. Students will apply a variety of IT tools for research.

    a. Can formulate search strings to achieve accurate results from search engines on the WWW.

    b. Can evaluate search results from page summaries and the URLs of found Web pages.

26. Students will demonstrate the ability to manage information and resources.

    a. Can recognize a computer directory structure, including local and network drive assignments.

    b. Understand common file extensions and the applications that they indicate.

    c. Understand the purpose of storing, searching and manipulating data in a database.

    d. Able to extract simple statistics from data in a spreadsheet.

    e. Understand storage needs of text and images and how this affects file transfer speed over a network.

27. Students will evaluate the impact of IT tools on the workplace, on individuals, and on society.

    a. Know how quick and easy access to information through networks affect people's lives and perceptions.

    b. Know that the Internet facilitates instant, global dissemination of ideas and thoughts.

28. Students will demonstrate an awareness of the protocols and ethics involved in the use of IT.

    a. Aware that copyright and patents apply to music, text, images and software.

    b. Understand what constitutes plagiarism in research and know how to properly cite sources.

    c. Aware of rules in computer ethics

29. Students will demonstrate an understanding of media to convey and enhance communication.
    a. Aware of how format and layout can affect communication of printed or on-screen information.
    b. Aware of basic design principles for effective visual communication.
30. Students will demonstrate familiarity and fluency with data entry technologies.
    a. Able to touch-type with some degree of speed and accuracy.
    b. Can effectively use common multi-media peripherals (scanner, digital camera, etc.)

Grade 10

31. Students will identify information technology tools that are useful in their daily lives
    a. Understand the importance of effective global communication through the development of web pages.
    b. Understand how to effectively manipulate images with the use of advanced functions of an image editing software.
    c. Understand the importance of using a spreadsheets and databases in data computer modeling.
    d. Understand the use of hardware devices, know its limitations and identify common problems.
    e. Know features of current and emerging technology.
    f. Identify in-depth the functions of a computer network.
32. Students will consistently demonstrate healthy and ergonomically safe use of IT tools.
    a. Effectively demonstrate correct posture.
    b. Effectively identify health problems that can ensue from incorrect posture and computer use.
    c. Effectively demonstrate environmental aspects of ergonomic computer use.
33. Students will use a variety of information technology tools, applications, and production processes.

    Use a variety of application to produce visually appealing and informative products independently:
    a. Know how to effectively apply computer modeling using a spreadsheet.
    b. Know how to design and create a database system.
    c. Know how to effectively manipulate images with the use of advanced functions of an image editing software.
    d. Know how to effectively use tools for presentation.

e. Know how to solve real- world problems with the use of computer programming.

f. Understand effective global communication through the development of web pages.

34. Students will apply problem-solving skills to meet information needs.

    a. Create data models to perform advanced goal-seeking analysis using spreadsheets and databases.

    b. Create professional looking web pages with the help of a web editing software.

    c. Can independently use available tools to recreate a given graphics design using image manipulation software.

    d. Translate a real world problem statement into a correct computer program using an appropriate computer language.

35. Students will apply a variety of IT tools for research.

    a. Effectively formulate search strings to achieve accurate results from search engines on the WWW.

    b. Independently evaluate search results from page summaries and the URLs of found Web pages.

36. Students will demonstrate the ability to manage information and resources.

    a. Effectively and independently log on and off from a network

    b. Effectively and independently manage files and folders.

    c. Effectively and independently use fixed and removable media.

37. Students will evaluate the impact of IT tools in the workplace, on individuals, and on society.

    a. Understand the current roles that software applications in formulating daily work process.

    b. Understand that the Internet facilitates instant, global dissemination of ideas and thoughts

38. Students will demonstrate an awareness of the protocols and ethics involved in the use of IT.

    a. Aware that copyright and patents apply to music, text, images and software.

    b. Understand what constitutes plagiarism in research and know how to properly cite sources.

    c. Understands the use of an Acceptable Use Policy.

39. Students will demonstrate an understanding of media to convey and enhance communication.

    a. Understand of how format and layout can affect communication of printed or on-screen information.

b. Understand basic design principles for effective visual communication.

40. Students will demonstrate familiarity and fluency with data entry technologies.

a. Uses Able to touch-type with higher degree of speed and accuracy.

b. Can effectively and independently use common multi-media peripherals (scanner, digital camera, etc.)