(P)(6)(C) investigate and choose electronic security methods for a web server to protect from unauthorized access and negative intentions. ; and

(Q)(8)(C) draw conclusions synthesize and generate new information from data gathered from electronic and telecommunications resources. ;

(5) Digital citizenship Information acquisition. The student understands human, cultural, and societal issues related to technology and practices legal and ethical behavior acquires electronic information in a variety of formats, with appropriate supervision. The student is expected to:

(A) engage in online activities that follow appropriate behavioral, communication, and privacy guidelines, including ethics, cyberbullying, personal security, verbiage determined by the intended audience, and ethical use of files/file sharing;

(B)(7)(G) implement online security guidelines, including identity protection, limited personal information sharing, and demonstrate the ability to control access to the WWW site via password protection of a secure website controls and global access/deny controls; and

(C) engage in safe, legal, and responsible use of information and technology;

(D)(1)(D) understand and respond to local, national, and global issues to ensure appropriate cross browser delineate and make necessary adjustments regarding compatibility issues including, but not limited to, digital file formats and cross platform usability connectivity;

(E) interpret, use, and develop a safe online shared computing environment;

(F) identify legal, ethical, appropriate and safe website marketing practices;

(G) identify legal, ethical, appropriate, and safe multimedia usage, including video, audio, graphics, animation, and emerging trends;

(H)(3)(C) analyze the impact of the WWW on society through research, interviews, and personal observation. ; and

(I)(8)(G) participate in relevant and meaningful activities in the larger community and society to create electronic projects.

(6) Technology operations and concepts Information acquisition. The student demonstrates a sound understanding of technology concepts, systems, and operations evaluates the acquired electronic information. The student is expected to:

(A) demonstrate knowledge of hardware, including scanners, cameras, printers, video cameras, and external hard drives;

(B) identify the parts of a computer and explain its functions;

(C) summarize the need for, functionality, and use of servers;

(D) identify the advantages and disadvantages of running a personal web server versus using a web server provider;

(E)(1)(B) differentiate compare, contrast, and use appropriately the various input, processing, output, and primary/secondary storage devices;

(F) create and implement universally accessible documents;

(G)   analyze bandwidth issues as they relate to audience, server, connectivity, and cost;

(H)(7)(II) establish a folder/directory hierarchy for storage of a web page and its related or linked files.

(I)   create file and folder naming conventions to follow established guidelines, including spacing, special characters, and capitalization;

(J)(7)(F) identify basic create and edit WWW documents using established design principles when creating a website, including consistency, repetition, alignment, proximity, ratio of text to white space, image file size, color use, theory, background color, shape, line, proximity, unity, balance (ratio of text to white space), alignment, typography, font size, type, and style, image file size, repetition, contrast, consistency, and aesthetics;

(K)   demonstrate knowledge of the six core domains (gov, net, com, mil, org, edu.) and be familiar with new domain implementation;

(L)   implement escape codes, html, css, and javascript through hard coding, web editors, and web authoring programs;

> **Comment [A116]:** based on old 10b

(M)   identify and use file transfer protocol (ftp) client software;

(N)   implement java applet insertion;

> **Comment [A117]:** based on old 10b

(O)   identify and differentiate various network topologies, including physical and logical;

(P)   create, evaluate, and use web-based animation;

(Q)   create, evaluate, and use video, including editing, compression, exporting, appropriateness, and delivery;

(R)(10)(C) demonstrate the ability to conduct secure communications transactions from a the web server to a the client; .

(S)(10)(A) use hypertext linking appropriately when creating WWW pages. ;

(7) Solving problems. The student uses appropriate computer-based productivity tools to create and modify solutions to problems. The student is expected to:

(A) use technology tools to create a knowledge base with a broad perspective;

(B) select and integrate appropriate productivity tools including, but not limited to, word processor, database, spreadsheet, telecommunication, draw, paint, and utility programs into the creation of WWW documents;

(C) use foundation and enrichment curricular content in the creation of WWW pages;

(8) Solving problems. The student uses research skills and electronic communication, with appropriate supervision, to create new knowledge. The student is expected to:

(B) extend teaching and learning in the local environment to the worldwide community through the creation and sharing of WWW documents;

(D) create and format WWW documents containing bookmarks of on-line resources and share them electronically;

(E) demonstrate the use of WWW pages, collaborative software, and productivity tools to create products;

(9) Solving problems. The student uses technology applications to facilitate evaluation of work, both process and product. The student is expected to:

(A) design and implement procedures to track trends, set timelines, and review/evaluate progress for continual improvement in process and product;

(B) seek and respond to advice from peers and professionals in delineating technological tasks;

(C) create technology specifications for tasks and evaluation rubrics; and

(D) resolve information conflicts and validate information through accessing, researching, and comparing data.

(10) Communication. The student formats digital information for appropriate and effective communication. The student is expected to:

(B) develop interactivity for the web server via scripting additions such as Common Gateway Interface (CGI), Java Script, or JAVA; and

(11) Communication. The student delivers the product electronically in a variety of media, with appropriate supervision. The student is expected to:

(A) synthesize and publish information in a variety of ways including, but not limited to, printed copy, monitor display, Internet documents, and video; and

(B) identify and use LANs, WANs, and remote resources to exchange and publish information.

(12) Communication. The student uses technology applications to facilitate evaluation of communication, both process and product. The student is expected to:

(A) create technology specifications for tasks and evaluation rubrics; and

(B) seek and respond to input from peers and professionals in evaluating the product.

DRAFT

§126.xx. Web Communications. (One-half Credit).

(a)   General requirements. This is an exploratory course in the knowledge and skills described in _____ of this title (relating to Technology Applications, Grades 6-8. This course is recommended for Students in Grades 8-9. This course satisfies the high school Communication Applications graduation requirement of §110.58.

(b)   Introduction

    (1)   The technology applications curriculum has six strands based on the National Educational Technology Standards (NETS●S) and Performance Indicators for Students developed by the International Society for Technology in Education (ISTE): creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.

    (2)   The integration of the global society and its exchange of information through innovative and diverse mediums that require the effective communication of multiple data elements, to display use of high quality and complex media that is created with the dynamic end user expectations. These adaptations drive the creation of new tools to allow students a selection process of powerful and effective ways through social communication that promotes their competitive development. Therefore, as we focus our insightful vision to the future, students are presented with courses that follow various challenges and changing trends in their productive capacity.

(C)   Knowledge and skills.

    (1)   Creativity and innovation. The student demonstrates creative thinking, constructs knowledge, and develops innovative products and processes using technology. The student is expected to:

        (A)   demonstrate proficiency in the use of local and online collaboration;

        (B)   create websites using web editors or web authoring programs;

        (C)   evaluate the accessibility and usability of original websites; and

        (D)   conceptualize possible technologies based on current technical trends.

    (2)   Communication and collaboration. The student learns to use digital technology to collaboratively work towards his/her own individual learning and towards the learning of others. The student is expected to:

        (A)   analyze the proper and acceptable use of digital/virtual communications technologies such as instant messaging (IM), chat, e-mail, and social networking;

        (B)   implement the proper and acceptable use of digital/virtual communications technologies such as instant messaging (IM), chat, e-mail, and social networking;

        (C)   define and implement the acquisition, sharing, and use of files taking into consideration primary ownership and copyright;

(D)   apply decisions regarding the selection, acquisition, and sharing of uniform resource locators (URLs) used in research taking into consideration their quality, appropriateness, and effectiveness; and

(E)   solve problems using critical-thinking strategies.

(3)   Research and information fluency. The student applies digital tools to gather, evaluate, and use information. The student is expected to:

(A)   verify the accuracy, validity, and currency of acquired information;

(B)   conduct effective searches using Boolean operators;

(C)   acquire and use appropriate vocabulary terms;

(D)   cite sources appropriately using established methods;

(E)   model ethical and legal acquisition of digital information following guidelines in the student code of conduct, including plagiarism and copyright laws;

(F)   identify and discuss emerging technologies and their impact;

(G)   understand Internet history and structure and how they impact current use; and

(H)   demonstrate appropriate use of grammar, spelling, and vocabulary when creating original work.

(4)   Critical thinking, problem solving and decision making. The student uses critical-thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. The student is expected to:

(A)   demonstrate the transfer and adaptation of knowledge through the creation of original work;

(B)   evaluate and implement security measures such as firewalls and hypertext transfer protocol secure (https) to protect original work;

(C)   analyze and follow timelines needed to create, edit, and present original work;

(D)   verify current licensing issues for software being used for the creation of original work;

(E)   identify and evaluate the design and functionality of webpages using rubrics;

(F)   optimize web information for fast download such as dial-up and high speed Internet and mobile devices; and

(G)   evaluate original work through self, peer, and professional review of websites.

(5)   Digital citizenship. The student understands human, cultural, and societal issues related to technology and practices legal and ethical behavior. The student is expected to:

(A)   engage in online activities that follow appropriate behavioral, communication, and privacy guidelines, including ethics, cyberbullying, personal security, and verbiage determined by the intended audience;

(B)   implement online security guidelines, including identity protection, limited personal information sharing, and password protection of a secure website; and

(C)   advocate and practice safe, legal, and responsible use of information and technology.

(6)   Technology operations and concepts. The student demonstrates a sound understanding of technology concepts, systems, and operations. The student is expected to:

    (A)   demonstrate knowledge of hardware such as scanners, cameras, printers, video cameras, and external hard drives;

    (B)   identify the parts of a computer and explain their functions;

    (C)   summarize the need, functionality, and use of servers;

    (D)   identify the advantages and disadvantages of running a personal web server versus using a web server provider;

    (E)   differentiate and use appropriately the various input, processing, output, and primary/secondary storage devices;

    (F)   create and implement universally accessible documents;

    (G)   analyze bandwidth issues as they relate to audience, servers, connectivity, and cost;

    (H)   establish a folder/directory hierarchy for storage of a web page and its related or linked files;

    (I)   follow file and folder naming conventions, including spacing, special characters, and capitalization; and

    (J)   identify basic design principles when creating a website.

§126.xx. Web Game Development (One Credit)

(a)   General requirements. This course is a progression of learning from the Web Design course in the knowledge and skills described in _____ of this title. This course is recommended for Students in Grades 11-12. This course satisfies the high school fine art graduation requirement of 117.52. Art, Level I. The prerequisite for this course is Web Design.

(b)   Introduction

> (1)   The technology applications curriculum has six strands based on the National Educational Technology Standards (NETS•S) and Performance Indicators for Students developed by the International Society for Technology in Education (ISTE): creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.

> (2)   The integration of the global society and its exchange of information through innovative and diverse mediums that require the effective communication of multiple data elements, to display use of high quality and complex media that is created with the dynamic end user expectations. These adaptations drive the creation of new tools to allow students a selection process of powerful and effective ways through social communication that promotes their competitive development. Therefore, as we focus our insightful vision to the future, students are presented with courses that follow various challenges and changing trends in their productive capacity.

(C)   Knowledge and Skills

> **Comment [A118]:** based on art TEKS

> (1)   Creativity and innovation. The student demonstrates creative thinking, construct knowledge, and develop innovative products and processes using technology. The student is expected to:

>> (A)   research and evaluate emerging technologies;

>> (B)   research and evaluate augmented reality, the supplementing of reality with computer-generated imagery, such as Head's Up Display and Virtual Digital Projectors;

>> (C)   research, evaluate, and demonstrate the appropriate design of a web-based gaming site;

>> (D)   illustrate ideas for web artwork from direct observations, experiences, and imagination;

>> **Comment [A119]:** 117.52(c)(1)(A)

>> (E)   create original designs for web applications; and

>> **Comment [A120]:** 117.52(c)(2)(B)

>> (F)   demonstrate the effective use of art media to create original web designs.

>> **Comment [A121]:** 117.52(c)(2)(C)

> (2)   Communication and collaboration. The student uses digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. The student is expected to:

>> (A)   understand and evaluate the use and appropriateness of webinars;

>> (B)   examine, discuss, and summarize interactive online learning environments;

>> (C)   distinguish between distance learning, virtual learning, and online learning;

>> (D)   define and evaluate Voice over Internet Protocol (VoIP);

(E)   identify and apply end-user, peer, self, and professional evaluations; and

(F)   work collaboratively to create functioning programs and gaming products.

(3)   Research and information fluency. The student applies digital tools to gather, evaluate, and use information. The student is expected to:

(A)   research, evaluate, and create web forms for database processing;

(B)   identify the various programming languages and differentiate among the available web programming languages;

(C)   research, evaluate, and summarize content management systems (CMS);

(D)   differentiate between Common Gateway Interface (CGI) and computer-generated imagery (CGI);

(E)   discuss, analyze and summarize streaming media/content and game broadcasting;

(F)   define and evaluate instant messaging (IM) within a game environment;

(G)   analyze and discuss the history of gaming;

(H)   discuss, analyze, and compare and contrast game types such as action, action-adventure, adventure, construction and management simulation, life simulation, massively multiplayer online role-playing (MMORPG), music, party, puzzle, role playing, sports, strategy, trivia, and vehicle simulation;

> **Comment [A122]:** 117.52.(c)(3)(C)

(I)   discuss, analyze, and compare and contrast gaming hardware, including console, personal computer, mobile, and web;

(J)   compare and contrast web standards versus browser-specific languages;

(K)   research, evaluate, and summarize e-commerce;

(L)   investigate career opportunities in programming, gaming, art, design, business, and marketing;

(M)   research the characteristics of existing gaming websites to determine local, state, national, and global trends;

(N)   compare and contrast historical and contemporary styles of art as applied to web site development;

> **Comment [A123]:** 117.52.(c)(3)(A)

(O)   compare and contrast the use of the art elements of color, texture, form, line, space and value and the art principles of emphasis, pattern, rhythm, balance, proportion, and unity in personal web game artwork and the web game artwork of others, using vocabulary accurately;

> **Comment [A124]:** 117.52.(c)(1)(B)

(P)   describe general characteristics in artwork from a variety of cultures that influence web game design.

> **Comment [A125]:** 117.52.(c)(3)(B)

(4)   Critical thinking, problem solving, and decision making. The student uses critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. The student is expected to:

(A)   select an appropriate web programming language based on given criteria;

(A)   evaluate the design, functionality, and accuracy of the accessed information;

(B)   conduct systematic research;

(C)   demonstrate creative thinking and problem solving skills;

(D)   integrate appropriate productivity tools including, but not limited to, network, mobile access, and multimedia tools, in the creation of solutions to problems;

(E)   use enriched curricular content in the creation of products;

(F)   synthesize and generate new information from data gathered from electronic resources;

(G)   read and use technical documentation; and

(H)   write simple technical documentation relative to the audience.

(5)   Digital citizenship. The student understands human, cultural, and societal issues related to technology and practice legal and ethical behavior. The student is expected to:

> **Comment [A155]:** VA

(A)   discuss intellectual property, privacy, sharing of information, copyright laws, and software licensing agreements;

(B)   model ethical acquisition and use of digital information;

(C)   model respect of intellectual property when editing graphics, video, text, and sound files;

(D)   demonstrate proper etiquette, responsible use of software, and knowledge of acceptable use policies when using network resources;

(E)   demonstrate best practices in understanding and applying information security;

(F)   develop and maintain a technical documentation library in a variety of formats; and

> **Comment [A156]:** VA

(G)   investigate how technology has changed and the social and ethical ramifications of computer usage.

(6)   Technology operations and concepts. The student demonstrates a sound understanding of technology concepts, systems, and operations. The student is expected to:

> **Comment [A157]:** VA

(A)   demonstrate knowledge and appropriate use of input devices, operating systems, software applications, communication and networking components;

(B)   select, acquire, and use appropriate digital tools;

(C)   delineate and make necessary adjustments regarding compatibility issues including, but not limited to, digital file formats and cross platform connectivity; and

(D)   use appropriate technology terminology and naming conventions.