Unit 1: Digital Assets - Program of Learning (Web Dev)

* <http://www.bsss.act.edu.au/__data/assets/word_doc/0004/454261/Digital_Technologies_A-T-M-V_20-24.docx>
* All of the below are **suggestions** on a possible sequence to deliver using the Digital Technology Course of the BSSS Technology Framework.
* Depth of the topics covered should be dependant on the skills/background of the teacher and students and are **suggestions** of experiences and skills the students could be exposed to.
* They are not expected to be delivered at significant depth unless the teacher/students are willing to do so.

# Web Design PoL

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| **Wk** | **Topic** | **Fundamental Concepts** | **Possibilities Classroom Activities / Assessment Items** | **Resources** | **Curriculum Links** |
| 1 | Web History & Website Structure and Processes (i.e. how does the internet work) | * What is the Web? * What is the Internet? * What have been the changes in web design over time? * How have they affected the use and accessing of data on the web? * What Is the Design Process? * Steps involved in the design process. * What assets are needed to develop a comprehensive web site? | * Review the internet white paper * Look at <http://www.archive.org>/[way back machine](https://archive.org/web/), and compare sites from early 90’s to modern day. * Comparison can be used to introduce the W3C and the role they’ve played in standardisation * Comparisons can be used to identify changes over time and technological improvements * Compare the changes in Hardware and Software over time * Make notes in the general design process/Design Cycle. Steps involved depend on tasks that are performed.   **Possible Assessment Task**   * Journal/Logbook: Ongoing notes, Page designs, algorithms, code snippets, ERD diagrams, database files, reflections on the work, sources of data, tutorials etc. | Internet White Paper: <https://web.stanford.edu/class/msande91si/www-spr04/readings/week1/InternetWhitepaper.htm>  W3C Standards: <https://www.w3.org/standards/> | 2f.  3a.  3c.  4a.  4b.  5a.  5b.  5d.  6a. |
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| 3 | Creating Web Page Assets Part 1 - HTML & CSS Development and learning about the W3C | * What is a Web Page? * How can we create a web page? * What are the assets required to build a web page/website? * What is meant by accessibility? * What is the difference in a web page’s content and a web page’s presentation? * What are decisions need to be made when creating a web page Content demands vs presentation demands) | **Content and Presentation**   * Separation of content vs presentation vs interactivity * HTML Basics such as:   + Head vs Body   + Metadata   + Text representation like <p> and <h1>   + Tables   + Nav   + Lists   + Forms   + Video   + Images   + There’s lots * CSS Basics to style all of the above * Examine the school’s style guide for their web pages/document production. * W3C Standards and Accessibility guidelines for all of the above * Can make heavy use of [W3Schools](https://www.w3schools.com/html/default.asp) for tutorials for all of the above   **Possible Assessment Task**   * Portfolio of web pages to show effective (not simple) use of the above assets to create a single web page. * The above could also be included in the student’s ongoing portfolio | HTML & CSS Tutorials (Free)   * <https://www.w3schools.com/html/> * <https://www.w3schools.com/css/>   HTML & CSS Tutorials ($30/student/year for all of Grok’s content, free for teachers) <https://groklearning.com/course/intro-html-css-1/>  Accessibility Standards and website checker: <https://www.w3.org/> | 1a.  1b.  1c.  2a.  2b.  2c.  2d.  2f.  3a.  3c.  3d.  4a.  4b.  5a.  5b.  5c.  5d.  6a. |
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| 9 | Creating Web Page Assets Part 2 – Adding Interactivity through programming | * How can a web page be “programmed”? * What is JavaScript? * How can a JavaScript program be created and used in a web page? * What is the DOM? * What are decisions need to be made when creating a web page Interactivity demands vs Content demands vs presentation demands * What are the benefits and disadvantages of using JavaScript in a web page? | **Programming Theory (JavaScript)**   * Data types   + Integer, Character, Float * Control Structures:   + If Statements   + For Loops   + While Loops * Data Structures:   + Arrays   + Lists * Functions * Checking of Data on a web page * Creating/editing HTML elements:   + Creating a JavaScript Cookie to store user data * Use DOM Model to alter/update a web page * Discuss the social issues of JavaScript, data collection and data retention. – Creation of Cookies and their use by the web host/designer etc   **Possible Assessment Task**   * Create a single or multi-page (2 - 3) web site that shows effective use of HTML, CSS and JavaScript assets | JS Tutorials (Free)   * <https://www.w3schools.com/js/>   JS Tutorials ($30/student/year for all of Grok’s content, free for teachers): <https://groklearning.com/course/intro-js-1/> | 1a.  1b.  1c.  2a.  2b.  2c.  2d.  2e.  2f.  3a.  3b.  3c.  3d.  4a.  4b.  5a.  5b.  5c.  5d.  6a. |
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| 13 | Creating Web Page Assets Part 3 – Databases and Web Page Design | * How do we store data in an easily accessible way?   + Databases   + Spreadsheets * What is a database? * How are they used in web sites? * Where is the data stored? * What is an RDBMS? * What are relationships in a RDB? * How do we obtain data from a database or RDB effectively? * How can we integrate the data into a Web page? | **Relational Database (RDB)**   * RDB vs Spreadsheet * Role in Website Development * Data Validation * Design of RDB * SQL Overview   + Queries   + Database creation   + Data update/editing   **Possible Assessment Task**   * Create a RDB of 3 – 5 tables * Develop an ERD for this design * Enter data for between 30 – 40 records * Query using SQL | SQL Tutorials (Free)   * <https://www.w3schools.com/sql/>   SQL Tutorials ($30/student/year for all of Grok’s content, free for teachers): <https://groklearning.com/course/intro-sql-1/>  MySQL | 1c.  2a.  2b.  2c.  2d.  2e.  2f.  3a.  3b.  3c.  3d.  4a.  4b.  5a.  5b.  5c.  5d.  6a. |
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| 19 | Catch Up Weeks/ Final Assessments |  | **Possible Assessment Task**   * End of unit Theory Test, Set of Prac. Exercises |  |  |
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