The UbD Template, Version 2.0

<table>
<tr><td>Time Frame: 4 Weeks</td><td>Unit Title: Apps for Good</td><td>Course Name: Technology and Society</td></tr>
<tr><td colspan="3">Stage 1 - Desired Results</td></tr>
<tr><td rowspan="4">Established Goals

NH Computer Science Standards
(Based on the CSTA K12 Computer Science Standards 2017)

CS - Computing Systems
2-CS-01 - Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.

2-CS-02 Design projects that combine hardware and software components to collect
and exchange data.

IC - Impacts of Computing
2-IC-20 - Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…

use the design thinking process to design and test a prototype of a software application to meet the needs of users.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that….

Planning and testing are critical steps in the design of computer applications.

User needs must guide the development of features and the interface of applications.</td><td>ESSENTIAL QUESTIONS
Students will keep considering

How do computer scientists identify the needs of their users?

How can we ensure that a user's needs are met by our designs?

What processes will best allow us to efficiently create, test, and iterate upon our design?

How do teams effectively work together to develop software?

What roles beyond programming are necessary to design and develop software?

How do designers incorporate feedback into multiple iterations of a product?</td></tr>
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	Acquisition	
2-IC-21 - Discuss issues of bias and accessibility in the design of existing technologies. 2-IC-22 - Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. AP - Algorithms and Programming 2-AP-10 - Use flowcharts and/or pseudocode to address complex problems as algorithms. 2-AP-13 - Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. 2-AP-15 - Seek and incorporate feedback from team members and users to refine a solution that meets user needs.	*Students will know…* the steps of the design thinking process: empathize, define, ideate, prototype, test. the role of paper prototypes in app development. the roles of software developers and user experience specialists in software development.	Students will be skilled at… applying the design thinking process to prototype a software application to meet the needs of others. viewing a design from different perspectives. generating multiple strategies for meeting user needs. testing and providing feedback for a design.

2-AP-17 - Systematically test and refine programs using a range of test cases. 2-AP-18 - Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts. 3A-AP-19 Systematically design and develop programs for broad audiences by incorporating feedback from users. DA - Data & Analysis 2-DA-08 - Collect data using computational tools and transform the data to make it more useful and reliable. 2-DA-09 - Refine computational models based on the data they have generated. **Common Core State Standards for English Language Arts** **Speaking and Listening 6-12**		

1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. 4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task. 5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest. **Writing Standards 6-12**		

6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically. **Next Generation Science Standards** HS-ETS1 Engineering Design HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.		