<table>
<thead>
<tr>
<th>Days</th>
<th>Unit</th>
<th>Standard(s)/Outcome(s)</th>
<th>Essential/Guiding Questions</th>
</tr>
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<tbody>
<tr>
<td>9</td>
<td>1 - Basics of the Law</td>
<td>1. Identify consequences of unethical and illegal conduct.</td>
<td>1. How will an understanding of the U.S. legal system impact my life?</td>
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<td></td>
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<td>2. Compare/contrast the national constitution with state constitutions and local charters.</td>
<td>2. What are the potential outcomes of ethical behavior? Unethical behavior?</td>
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<td>3. Analyze specific cases by stating the facts, finding the legal questions, applying the laws, and resolving the issues.</td>
<td>3. What is the importance of the historic perspective when examining the structure of the U.S. court system?</td>
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<td>4. Differentiate between cases that belong within the jurisdiction of the federal and state court systems.</td>
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<td>5. Compare the role of the juvenile court with the role of other courts within a state.</td>
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<td>6. Explain the role of the national and state appellate courts.</td>
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<td>8</td>
<td>1 – Problem Solving and Computers</td>
<td>1. Identify the four steps of the problem solving process</td>
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<td>2. Apply the problem solving process</td>
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<td>3. Identify what makes a computer</td>
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<td>14</td>
<td>2 - Web Development</td>
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<td>1. Identify the purpose of a website from the perspective of both users and creators.</td>
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<td>2. Identify websites as a form of personal expression</td>
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<td>3. Identify the purpose of html and its role in web design, and how to build our skills in Web Lab.</td>
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<td>4. Explain how to use html tags</td>
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4. Identify the inputs and outputs of common computing devices 
5. Develop an algorithm for processing information 
6. Determine a possible source of a given input, and why that input should be stored on a device 
7. Design an app to solve a problem

**Intro to Problem Solving**
**The Problem Solving Process**
**Exploring Problem Solving**
**What is a Computer?**
**Input and Output**
**Processing**
**Apps and Storage**
**Project: Propose an App**
to change a website appearance and structure content.
5. Discern what is safe to publish and share online.
6. Use list tags
7. Explain the nature of copyright and how we can use it.
8. Experience how proper formatting and documentation is used in HTML to improve communication and bug finding.
10. Describe CSS and how to use it effectively in web design.
11. Use CSS to change sizes, positions, and create element borders through rules that govern the entire website.
13. Apply color and style to a web site
14. Implement incremental improvements to a web site

Exploring Websites
| Websites for Expression  
| Intro to HTML  
| Headers  
| Digital Footprint  
| Lists  
| Intellectual Property  
| Clean Coding and Debugging  
| Project: Multipage Website  
| Styling Text with CSS  
| Styling Elements with CSS  
| Sources and Search Engines  
| RGB Colors and Classes  
| Project: Personal Portfolio Website |

<table>
<thead>
<tr>
<th>18</th>
<th>3 - Animations and Games</th>
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</table>
| 1. *Identify how Computer Science is used in a field of entertainment*  
2. *Communicate how to draw an image in Game Lab, accounting for shape position, color, and order*  
3. *Use the Game Lab IDE to plot different colored shapes on the screen and overlap them*  
4. *Use and reason about drawing commands with multiple parameters and use random numbers in a program*  
5. *Identify and use a variable as a way* |
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<td>to label and reference a value in a program</td>
<td>6. Assign a sprite to a variable and update its properties</td>
<td>7. Animate a sprite.</td>
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<td>8. Describe the connection between updating a sprite's location properties and sprite movement on the screen</td>
<td>9. Explain how a specific movement is achieved</td>
<td>10. Develop complex Boolean statements</td>
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<td>11. Use conditionals to react to changes in variables and sprite properties</td>
<td>12. Demonstrate how to move sprites in response to keyboard input</td>
<td>13. Differentiate between conditions that are true once per interaction, and those that remain true through the duration of an interaction</td>
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<td>14. Demonstrate the programming skills you have acquired</td>
<td>15. Explain the advantages of simplifying code using higher level blocks</td>
<td>16. Illustrate how abstractions help to manage the</td>
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</tbody>
</table>
17. Explain how individual programming constructs can be combined to create more complex behavior
18. Illustrate how abstractions can be built upon to develop even further abstractions
19. Create and use functions in a program to improve the readability of their programs
20. Demonstrate knowledge of core programming constructs necessary to build different components of a game
21. Develop and implement a plan for creating a piece of software

Programming for Entertainment
Plotting Shapes
Drawing in the Game Lab
Parameters and Randomization
Variables
Sprites
The Draw Loop
Counter Pattern (Unplugged)
Moving Sprites
Booleans (Unplugged)
Booleans and Conditionals
Conditionals and User Input
<table>
<thead>
<tr>
<th>16</th>
<th>4 – The Design Process</th>
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<tbody>
<tr>
<td></td>
<td>1. Evaluate an object for how well its design meets a given set of needs</td>
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<td></td>
<td>2. Critique a design through the perspective of a user profile</td>
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<td>3. Create meaningful categories from a collection of ideas</td>
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<td></td>
<td>4. Identify the user needs a prototype was designed to address</td>
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<td></td>
<td>5. Categorize and prioritize user feedback for an app</td>
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<td>6. Analyze interview notes to develop follow-up questions</td>
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<td>7. Design the functionality of an app to address the specific needs of a user</td>
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<td>8. Identify ways in which apps can effect social change</td>
</tr>
<tr>
<td></td>
<td>9. Identify the user needs being addressed by an app</td>
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</tbody>
</table>
10. Communicate the design and intended use of program
11. Test a prototype with a user, recording the results
12. Translate a paper prototype into a digital format
13. Write programs that respond to user input
14. Run a user test on an app and record what users say about their minimum viable product
15. Prioritize the bugs and features according to impact and ease of implementation
16. Present technical information clearly to non-technical users

Analysis of Design
Understanding Your User
User-Centered Design
User Interfaces
Feedback and Testing
Identifying Users Needs
Project: Paper Prototype
Designing Apps for Good
Market Research
Paper Prototypes
Prototype Testing
Digital Design
Linking Screens
Testing the App
## Improving and Iterating  
### Project: App Presentation

1. Provide examples of how representing data in different ways can affect its ability to solve different problems
2. Create, use, and provide feedback on a system for representing information
3. Use the ASCII system to encode and decode text information in binary
4. Create and manipulate binary patterns to represent black and white images
5. Extend a representation system based on patterns.
6. Apply a method of encryption to ensure the secure transmission of data.
7. Use multiple binary systems to decode information.
8. Create a generalized representation system for many instances of a complex type of information
9. Identify and collect relevant data to help solve a problem
10. Distinguish between data that users intentionally and
11. Explain why a set of data must be cleaned before a computer can use it.
12. Use tables and visualizations summarizing data to support a decision
13. Use cross tabulation to find patterns and relationships in data
14. Design an algorithm for making decisions using data as inputs
15. Determine appropriate sources of data needed to solve a problem

Representation Matters
Patterns and Representations
ASCII and Binary Representations
Representing Images
Combining Representations
Create a Representation
Problem Solving and Data
Problem Solving with Big Data
Structuring Data
Making Decisions with Data
Interpreting Data
Automating Data Decisions
Project: Make a Recommendation
<table>
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<tr>
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<th>6 - Physical Computing</th>
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<tbody>
<tr>
<td>1.</td>
<td>Identify computing innovations within a given field</td>
</tr>
<tr>
<td>2.</td>
<td>Write programs that change multiple elements on a single screen instead of changing screens</td>
</tr>
<tr>
<td>3.</td>
<td>Use code to control a physical device</td>
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<tr>
<td>4.</td>
<td>Attach an event handler to a hardware input</td>
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<td>5.</td>
<td>Develop programs that respond to analog input</td>
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<td>6.</td>
<td>Create a function that uses parameters to generalize behavior</td>
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<td>7.</td>
<td>Access an element in an array using its index</td>
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<td>8.</td>
<td>Create and modify an array</td>
</tr>
<tr>
<td>9.</td>
<td>Modify the exit condition of a for loop to control how many times it repeats</td>
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<tr>
<td>10.</td>
<td>Recognize the use and need for accelerometer orientation</td>
</tr>
<tr>
<td>11.</td>
<td>Use parameters to generalize the purpose of a function</td>
</tr>
<tr>
<td>12.</td>
<td>Create and debug simple circuits</td>
</tr>
<tr>
<td>13.</td>
<td>Develop an interactive physical prototype that combines software and</td>
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</table>
hardware
14. Independently scope the features of a piece of software
15. Prototype a physical computing device
16. Implement a plan for developing a piece of software that integrates hardware inputs and outputs

Innovations in Computing
Designing Screens with Code
The Circuit Playground
Input (Unplugged)
Board Events
Getting Properties
Analog Input
The Program Design Process
Project: Make a Game
Arrays and Color LEDs
Making Music
Arrays and For Loops
Accelerometer
Functions with Parameters
Circuits and Physical Prototypes
Project: Prototype an Innovation
| Last Days Arduino / Edison Robots Exploration Review Final Exam |