HOLLISTON Public Schools

Unit 1: The Design Process

Subject Area: Computer Science	**Course:** 7th Grade Computer Science		
Unit Title: The Design Process (Code.org Unit 4)	**Grades(s):** 7	Start: September	End: November
Unit Summary: The Design Process unit transitions students from thinking about computer science as a tool to solve their own problems towards considering the broader social impacts of computing. Through a series of design challenges, students are asked to consider and understand the needs of others while developing a solution to a problem. The second half of the unit consists of an iterative team project, during which students have the opportunity to identify a need that they care about, prototype solutions both on paper and in App Lab, and test their solutions with real users to get feedback and drive further iteration.			

Stage 1: Desired Results

Massachusetts Learning Standards

Grades 6 to 8: Computing Systems [CS]

- 5. Individually and collaboratively design and demonstrate the use of a device (e.g., robot, etextile) to accomplish a task.

Interpersonal and Societal Impact [6-8.CAS.c]

- 1. Describe current events and emerging technologies in computing and the effects they may have on education, the workplace, individuals, communities, and global society.

HOLLISTON Public Schools

Unit 1: The Design Process

- 2. Identify and discuss the technology proficiencies needed in the classroom and the workplace, and how to meet the needs.

Programming and Development [6-8.CT.d]

- 6. Use an iterative approach in development and debugging to understand the dimensions of a problem clearly.

Human and Computer Partnerships [6-8.CS.b]

- 1. Explain why some problems can be solved more easily by computers or humans based on a general understanding of types of tasks at which each excels.

Services [6-8.CS.d]

- 1. Identify capabilities of devices that are enabled through services (e.g., a wearable device that stores fitness data in the cloud, a mobile device that uses location services for navigation).

Transfer (Authentic, relevant application of learning to new situations)

Students will be able to independently use their learning to…

Design an App which solves a problem in their local community.

Meaning

Enduring Understandings	Essential Questions
Students will understand that… • Identifying problems comes from communicating with others, and identifying solutions come from applying the problem solving process. • To design a product one needs to have empathy for the users of the product. • To improve upon solutions, designers seek out feedback from users of their products.	**Students will consider…** • How to identify problems in one's community which may be solved using technology? • How do designers create products that meet the needs of their users? • How do designers continually find ways to improve their products?

HOLLISTON Public Schools

Unit 1: The Design Process

• Creating a product which is beneficial requires more than just technology savvy, it requires soft skills like listening and communication.	• What skills beyond being a good programmer are needed to develop good applications?
Acquisition	
Knowledge **Students will know…** • How to design with empathy. • How to use listening skills to identify problems in a community. • What a prototype is and how to create one. • How to design user interfaces.	**Skills** **Students will be skilled at…** • User interface design. • Interviewing and practicing user centered design. • Creating a project prototype. • Working with teammates to identify and solve problems.