Intro to Computer Science - Unit 6 - Working with Strings

Unit Focus

This unit marks a shift in the course from a focus on learning the building blocks of computer programming to using those building blocks to solve problems. In this unit, students are exposed to many of the built-in methods of the String class, and then use these methods to solve challenges involving strings that require many of the skills they've learned in prior units.

Stage 1: Desired Results - Key Understandings

Standard(s)

Common Core
Mathematics: 9-12

- Make sense of problems and persevere in solving them. (CCSS.MATH.MP.1)
- Model with mathematics. (CCSS.MATH.MP.4)
- Use appropriate tools strategically. (CCSS.MATH.MP.5)
- Look for and express regularity in repeated reasoning. (CCSS.MATH.MP.8)

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- Analyzing: Examining information/data/ evidence from multiple sources to identify possible underlying assumptions, patterns, and relationships in order to make inferences. (POG.1.2)

Transfer

Students will be able to independently use their learning to...
T1 make sense of a problem, initiate a plan, execute it, and evaluate the reasonableness of the solution.
T2 use appropriate tools to make reaching solutions more efficient, accessible and accurate.
T3 apply familiar mathematical concepts to a new problem or apply a new concept to rework a familiar problem.

Meaning

Understanding(s)

Students will understand that...
U1 Effective problem solvers work to make sense of the problem before trying to solve it.
U2 Computer Scientists identify relevant tools, strategies, relationships, and/or information in order to draw conclusion
U3 Computer Scientists continually evaluate their process and the reasonableness of the intermediate results.
U4 Computer Scientists can describe patterns, relations, and/or functions to access strategies to solve problems.

Essential Question(s)

Students will keep considering...
Q1 How does a problem solver think?
Q2 How can I break a problem down into manageable parts?
Q3 What is another way that this problem could be solved?
Q4 How do I decide if my answer makes sense and if not, what do I do?
Q5 What is the most efficient way to solve this problem?

Acquisition of Knowledge and Skill

Knowledge

Students will know...
K1 what a string is
K2 how to iterate through all of the characters in a string using several different techniques
K3 how to create a list of strings

Skill(s)

Students will be skilled at...
S1 using many of the built-in string methods to construct new strings from existing strings
S2 working with module and class files
S3 creating public functions

Stage 1: Desired Results - Key Understandings		
	K4 how to return a list of strings from a function **K5** that a string is a collection of characters that can be searched and manipulated **K6** that strings are immutable **K7** Vocabulary: string, character, array, list, module, class, method, parse, index, shared, algorithm	**S4** decomposing a problem into smaller parts **S5** passing strings as arguments to functions **S6** returning strings from functions