Variables Activity and Project Analysis

Primary Parallel: Core – Variable techniques and issues, including Strings

Novice	Apprentice	Practitioner	Expert
There are different types of variables	Knows how to use variables and manipulate them with operations	Knows how to use class operations to do value manipulation	Can handle strings, knows the difference between strings and numbers
• Knows that data comes in different types	• Knows how to declare and use variables • Knows how to process numeric and logical variables	• Use class operations (e.g. Math, Integer conversion, to String methods) • Knows difference between concatenation vs. + • Can convert numbers to string and vice versa	• Manipulate strings • Knows difference between strings and numbers
Test • Classify variable and value types • Determine types and value range needed for given problems	*Project/Lab* • *Test* • Write code to define and use variables • Write code for math and logic expressions (+, -, *, /, ||, &&, !, ==, !=) • Predict output for coded expressions given variable values	*Product/Lab* • Use and process numerical values in web site • Use and process numerical values in application and applet • Concatenate string values to make proper output messages in products *Test* • Desk-check class code • Write code for classes • Write code to create objects from classes • Modify class code for properties or methods • Predict output for code	*Product – Phase 1* • Include string manipulation in application *Test* • Code string manipulations (concatenation, substring, parsing) • Difference between strings, characters and numbers • Handle difference between integers vs. doubles

Notes:
 • Supports other main concepts such as I/O and Functions/Methods