Intro to Programming Class  
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Course Overview  
This class will give a student the basic overview of computer programming using both Scratch and Python as the main methods of teaching and learning. We got our standards and abilities from the Iowa Computer Science Standards.

Course Outcomes  
Outcome 1  
... Block coding in Scratch  
... assessment(s)  
Competency Demonstration  
Students should be able to...  
3B-AP-10 Use and adapt classic algorithms to solve computational problems.  
3B-AP-11 Evaluate algorithms in terms of their efficiency, correctness, and clarity.  
3B-AP-12 Compare and contrast fundamental data structures and their uses.  
3B-AP-13 Illustrate the flow of execution of a recursive algorithm.  
3B-AP-14 Construct solutions to problems using student-created components, such as procedures, modules and/or objects.  
By doing...  
Simple Animation  
Storytelling (include 2 sprites, sound, and words)  
Question, Answer, Choice, Results  
Quiz with Loops

Outcome 2  
... Programming with Python  
... assessment(s)  
Competency Demonstration  
Students should be able to...  
3B-AP-10 Use and adapt classic algorithms to solve computational problems.  
3B-AP-11 Evaluate algorithms in terms of their efficiency, correctness, and clarity.  
3B-AP-12 Compare and contrast fundamental data structures and their uses.  
3B-AP-13 Illustrate the flow of execution of a recursive algorithm.  
3B-AP-14 Construct solutions to problems using student-created components, such as procedures, modules and/or objects.  
3B-AP-15 Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution.  
3B-AP-16 Demonstrate code reuse by creating programming solutions using libraries and APIs.  
By doing...  
Formulas  
Functions  
Guessing Games  
Loops  
Lists
Intermediate Outcomes: Scratch

Intermediate Outcome 1: 3B-AP-10 Use and adapt classic algorithms to solve computational problems.
... description
Students will be able to use block coding to coordinate algorithms, if-then statements, and boolean statements in an applicable setting.
... assessment(s)
Making a Distance/Reaction Game

Intermediate Outcome 2: 3B-AP-11 Evaluate algorithms in terms of their efficiency, correctness, and clarity.
... description
Students should be able to tell clean and correct code from bad/incorrect code.
... assessment(s)
Give the students incorrect code and tell them to fix it.

Intermediate Outcome 3: 3B-AP-12 Compare and contrast fundamental data structures and their uses.
... description
Students should be able to create an assignment that takes in user input.
... assessment(s)
Making a quiz game that has information from an outside source.

Intermediate Outcome 4: 3B-AP-13 Illustrate the flow of execution of a recursive algorithm.
... description
Students should be able to make their own functions within the program, and use loops as appropriate.
... assessment(s)
Making a program that uses functions created by the student.

Intermediate Outcome 5: 3B-AP-14 Construct solutions to problems using student-created components, such as procedures, modules and/or objects.
... description
Students should be able to make their own functions within the program.
... assessment(s)
Making a program that uses functions created by the student.

Intermediate Outcomes: Python

Intermediate Outcome 1: 3B-AP-10 Use and adapt classic algorithms to solve computational problems.
... description
Students will be able to use Python coding to coordinate algorithms, if-then statements, and boolean statements in an applicable setting.
... assessment(s)
Making formulas in python using functions, else-if's, boolean statements, and loops.

Intermediate Outcome 2: 3B-AP-11 Evaluate algorithms in terms of their efficiency, correctness, and clarity.
... description
Students should be able to tell clean and correct code from bad/incorrect code.
... assessment(s)
Giving the students incorrect/bad/sloppy code and giving them a goal of how to solve the code, and they have to figure out how to fix the code to make it work towards the goal.
**Intermediate Outcome 3**: 3B-AP-12 Compare and contrast fundamental data structures and their uses.

... description
Students should be able to create an assignment that takes in data from outside of python and modifies or changes it to make it more applicable.

... assessment(s)
Students should take .csv data and use that data to make an outcome.

**Intermediate Outcome 4**: 3B-AP-13 Illustrate the flow of execution of a recursive algorithm.

... description
Students should be able to make their own functions within the program, and use loops as appropriate.

... assessment(s)
Making a program that uses functions created by the student. Such as a game that uses rolling dice.

**Intermediate Outcome 5**: 3B-AP-14 Construct solutions to problems using student-created components, such as procedures, modules and/or objects.

... description
Students should be able to make their own functions within the program.

... assessment(s)
Making a program that uses functions created by the student.

**Intermediate Outcome 6**: 3B-AP-15 Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution.

... description
Students should be able to look at large scale data and analyze patterns, components, and statistics.

... assessment(s)
Use a large amount of data and develop code that gives us the statistical data using functions and lists.

**Intermediate Outcome 7**: 3B-AP-16 Demonstrate code reuse by creating programming solutions using libraries and APIs.

... description
Students will be able to use the libraries to look up specific information in a data set and manipulate the information for user knowledge.

... assessment(s)
Using a large data set and writing functions and loops to get information in libraries regarding statistics and gathering data into different formats.