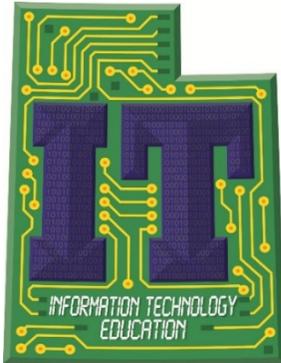# STRANDS AND STANDARDS
INTRODUCTION TO PYTHON 2

Course Description

Python is a language with a simple syntax, and a powerful set of libraries. It is an interpreted language, with a rich programming environment, including a robust debugger and profiler. While it is easy for beginners to learn, it is widely used in many scientific areas for data exploration. This course is an introduction to the Python programming language for students without prior programming experience. See Microsoft Imagine Academy for more details about the course and for added curriculum.

Intended Grade Level	7-9
Units of Credit	0.5
Core Code	35.02.00.00.006
Concurrent Enrollment Core Code	NA
Prerequisite	Introduction to Python 1
Skill Certification Test Number	NA
Test Weight	NA
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	No Endorsement until 2020/2021
Endorsement 1	
Endorsement 2	
Endorsement 3	

STRAND 1

Sequence Indexes

Standard 1

Students will be able to:
- Understand how to work with Jupyter notebooks.
- Understand an index and how it is used.
- Understand how a string is indexed.
- Work with string characters by index.

Standard 2

Students will be able to:
- Slice strings into substrings.

Standard 3

Students will be able to:
- Iterate through string characters.

Standard 4

Students will be able to:
- Use string methods.

Performance Skills
- Work with string characters.
- Slice strings into substrings.
- Iterate through string characters.
- Use string methods.

STRAND 2

Sequence Manipulation

Standard 1

Students will be able to:
- Create lists.
- Access items in a list.

Standard 2

Students will be able to:
- Add items to the end of a list.

Standard 3

Students will be able to:
- Modify and insert items into a list.

Standard 4

Students will be able to:

- Delete items from a list by using del, .pop(), and .remove().

Performance Objective

- Create lists.
- Access items in a list.
- Add items to the end of a list.
- Insert items into a list.
- Delete items from a list.

STRAND 3

Sequence Iteration

Standard 1

Students will be able to:

- Iterate through Lists using for with in.

Standard 2

Students will be able to:

- Use for range() in looping operations.

Standard 3

Students will be able to:

- Use the list methods .extend(), +, .reverse(), and .sort().

Standard 4

Students will be able to:

- Convert between lists and strings by using .split() and .join().

Performance Skills

- Iterate through lists using for and in.
- Use for *count* in range() In looping operations.
- Use the list methods .extend(), +, reverse(), and sort().
- Convert between lists and strings by using .split9) and .join().
- Cast strings to lists/direct multiple print outputs to a single line.

STRAND 4

Working with Files

Standard 1

Students will be able to:

- Import files into Jupyter notebooks by using the curl command.
- Open and read local files in memory.
- Use .read() to read a specific number of characters.

Standard 2

Students will be able to:
- Use .readlines() to read text from files as a list of lines.
- Use .close() to free system resources.

Standard 3

Students will be able to:
- Use .readline() to read data from a file one line at a time.
- Use .strip() to remove newline characters and other whitespaces.

Standard 4

Students will be able to:
- Use .seek() to set file read and write locations.
- Use file append mode.

Performance Skills

- Import files into Jupyter notebooks.
- Open and .read() local files in memory.
- Use .read() to read a specific number of characters.
- Use .readlines() to read data from file as a list of lines.
- Use .readline() to read data from file a line at a time.
- Use .strip() to remove newline characters.
- Use .write() to write data to a new local file.
- Use .seek() to set file read or write location.
- Use file append mode.