Lesson Summary

#	Title	Pillar(s)	Description/Topic(s)	Periods
01	More on Data Structures	Data Structures	1. Useful list functions and list comprehensions 2. Sets 3. Dictionaries and dictionary comprehensions 4. Room Adventure...Reloaded 5. Data structures summary	2
02	More on Objects	Computer Programming	1. Review of inheritance 2. Abstraction and modularization 3. Polymorphism and method lookup 4. Multiple inheritance 5. Abstract methods and abstract classes 6. Coupling and cohesion	4
03	Graphical User Interfaces	Beam (Application #1)	1. GUI components 2. Events 3. The Python Tkinter library 4. Common GUI widgets 5. Configuring and positioning widgets 6. Various GUI examples	1
04	Building a Computer	Computer Architecture	1. Representation of signed numbers (signed magnitude, one's complement, two's complement) 2. Representation of characters 3. Representation of floating point numbers 4. Decoders, encoders, multiplexers, and demultiplexers 5. R-S flip-flops and clocked R-S flip-flops 6. Building a simple computer	5
05	Problem Solving with Computers	Beam (Application #2)	1. The changing role of computers 2. Communication-oriented applications 3. Spreadsheets (including relative and absolute cell referencing, and replication and built-in functions) 4. Solving problems with spreadsheets 5. The Chaos Game spreadsheet	1
06	Software Engineering	Beam (Application #3)	1. Introduction to software engineering 2. Analysis and design 3. Documentation 4. Prototyping 5. Iterative software development 6. Errors, exceptions, and exception handling 7. Testing and debugging 8. Software engineering in action: game of life	1

07	Algorithms...Reloaded	Algorithms, Computer Programming	1. Introduction to Java 2. A first Java program 3. Data types, constants, and variables 4. I/O, operators, and primary control constructs 5. Variable scope and program flow 6. Arrays 7. The foreach loop 8. The selection sort and binary search in Java 9. Laying out classes (Fraction...Reloaded) 10. Inheritance, abstract classes and methods, and more (Shapes...Reloaded)	3
08	Artificial Intelligence	Beam (Application #4)	1. Introduction to artificial intelligence (AI) 2. Can intelligent machines be constructed? 3. The Turing Test 4. A brief history of AI 5. Game playing and search techniques 6. Automated reasoning 7. Neural networks and machine learning	1
Pi Activities				3
Final Pi Project				4
Exams				3
Housekeeping				1
Slack				1
TOTAL				**30**