For Intermediate Students

Lesson One: Conditionals ()

- 10 minutes- Quick Introduction
  - Welcome to the Intermediate Course
    - Class discussion
      - What is a conditional?
      - When do we use conditionals in our everyday lives?
    - Introduction to Python Syntax
      - How do we program conditionals in Python?
- 20 minutes- Unplugged Activity
  - Learn Conditionals with Cards
    - One student picks a card and depending on the suite and the number everyone does a certain action i.e. if its a 6 and heart jumps up and down three times. This can be made into a game by eliminating the student who does the wrong action or takes the longest to complete the right action.
- 10 minutes - break
- 35 minutes - Plugged Activity
  - Simple Python Program
    - Using the randint() method in python, generate a random number. If that number is even have it print "this is an even number" is its odd print "this is an odd number"
- 15 minutes - Debrief
  - Speak with the class about what they learned today
  - Address any questions

Lesson One: Conditionals (Option 2)

- 10 minutes- Quick Introduction
  - Welcome to the Intermediate Course
    - Class discussion
      - What is a conditional?
      - When do we use conditionals in our everyday lives?
    - Introduction to Python Syntax
      - How do we program conditionals in Python?

- 10 minutes- Unplugged Activity
  - Simon Says
    - Play a game of Simon Says. After a couple of rounds debrief. Talk about how Simon Says demonstrates how conditionals work. How does what Simon Says determine what you do? Break it down into an if statement:

      If Simon Says "Simon says" before the instruction,
          do the instruction,
      else
          do nothing
- 10 minutes - break
- 1 hour - Plugged Activity
  - Mindstorms OR Spike
    - Build a lego robot of choice (Mindstorms or spike). Once the robot is built, set it up about 10 feet away from the wall. Write a program that, using the sensor and conditionals, makes the robot move forward until it is near the wall, then stop.

Lesson Two: Conditionals/Loops

- 10 minutes
  - review conditionals by having the students complete tracing activities
- 15 minutes - Introduction to Loops
  - What is a Loop?
  - What are the basic loop structures in Python?
- 10 minutes - Unplugged Activity
  - Dice Dancing
    - Have students do a dance move repeated by the number that the die lands on.
- 15 minutes - break
- 45 minutes - Simple Lego Project
  - Build a lego robot and write a program using a loop to have the robot drive in a square returning to its original position and orientation
  - No robot? Do the same thing in scratch, replacing the robot with a sprite

Lesson Three: Functions

- 5 minutes
  - review loops from the previous lesson and tracing activities
- 15 minutes - Introduction to Functions
  - What is Modularity and Abstraction?
  - What is a Function?
  - What are the basic loop structures in Python?
- 10 minutes - Unplugged Activity
  - Dice Dancing
    - Have students do a dance move repeated by the number that the die lands on.
- 15 minutes - break
- 45 minutes - Simple Lego Project
  - Build a lego robot and write a program using a loop to have the robot drive in a square returning to its original position and orientation
  - No robot? Do the same thing in scratch, replacing the robot with a sprite

Lesson Four - Logic Gates

- 5 minutes - review
  - Review functions and have the students complete tracing activities
- 30