

Name: \_\_\_\_\_

Partner: \_\_\_\_\_

### Python Activity 63: Java – Loops

*Java* is programming language that shares some commonalities with Python. Examining *control structures* such as loops in Java and Python delineate which concepts we've learned are specific to Python, and which are more general to computer science and computational thinking! It also allows us to review what we learned about Python loops!

#### Learning Objectives

Students will be able to:

*Content:*

- Predict what Java code with *while..loops* and *for..loops* will do
- Describe the differences in syntax between Python & Java *sentinal* and *count controlled loops*

*Process:*

- Write Java code equivalents of Python code using *while..loops* and *for..loops*

#### Prior Knowledge

- Python concepts: Python, loops, Java data types, Java conditionals

#### Critical Thinking Questions:

##### SENTINAL-CONTROLLED LOOPS

1. The table below shows the Python and Java versions of a *while loops*:  
Circle where the *Java while..loop syntax* differs from the Python *while..loop syntax*.

While..loop:: Python (left), Java (right) – code snippets	
<pre>num = 10 while num &gt; 0:     print(num)     num = num // 2</pre>	<pre>int num = 10; while (num &gt; 0) {     System.out.println(num);     num = num / 2; }</pre>

 How does the *syntax* for *while..loops* differ in Python and Java?

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##### COUNT LOOPS

2. The table below shows the Python and Java versions of a *for..each loop*:  
Circle where the *Java for..each loop syntax* differs from the Python *for..loop syntax*.

For..each loop:: Python (left), Java (right) – code snippets	
<pre>word = "Williams" for char in word:     print(char)</pre>	<pre>String word = "Williams"; for (char c: word.toCharArray()) {     System.out.println(c); }</pre>

3. The table below shows the Python and Java versions of a *for..loop*:  
Circle where the *Java for..loop syntax* differs from the Python *for..loop syntax*.

For..loop:: Python (left), Java (right) – code snippets	
<pre>word = "Williams" size = len(word) for i in range(size):     print(word[i])</pre>	<pre>String word = "Williams"; int size = word.length(); for (int i = 0; i &lt; size; i++) {     System.out.println(word.charAt(i)); }</pre>



How does the *syntax* for *for..loops* differ in Python and Java?

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### Application Questions.

1. Write a Java program that does the equivalent of the following Python program:

```
def main():
    """Prints True if all numbers in list are even"""
    mylist = [12, 100, 2, 56, 3]
    is_true_so_far = True
    for num in mylist:
        if num%2 != 0:
            is_true_so_far = False
    print(is_true_so_far)

if __name__ == "__main__":
    main()
```

```
public class IsEvenList {
    public static void main(String args[]){
```