Intro to Computer Science: Loops

Learning Target :	Today I will learn how to code a **For Loop**.
Success Criteria:	I have completed all of today's tasks.

DO NOW:

Code	Task

Program 1:
System.out.println("Hello World");
System.out.println("Hello World");
System.out.println("Hello World");
System.out.println("Hello World");
System.out.println("Hello World");
Program 2:
for (int i = 0; i < 5; i++){
  System.out.println("Hello World");
}
	Run these two programs, then compare and contrast:
	
	Similarities:
	
	Differences:

Task 1: Watch Video then fill in table below

	Question	Answer
1	Why do we use Loops?	
2	What is a FOR Loop?	
3.	When would we use a FOR Loop?	
4.	What is a loop control variable?	
5	How does the loop in program 2 above end?	

Kinesthetic Activity: Practice using the value of the index to change an output.

Whole Class: Tennis ball

Ask for 5 volunteers to line up in the front of the room. Tape a visible sign on each of them, first kid “i am 1”, 2nd “i am 2” etc.

1) Show this pseudocode on smartboard, explaining the method bounceBall just tells you how many times to do it.

```
for (int i = 1; i < 6; i++){
        bounceBall(1);
    }
```

Give the ball to “i am 1” and tell them to execute the code, and then pass it to “ i is 2” etc…so each kid bounces the ball once. On whiteboard, make a note of what happened/verbally summarize.

2) Explain that the more important use is to change the value of an output, like the role of x in a linear function rule.

Show this code:

```
for (int i = 1; i < 6; i++){
        bounceBall(i);
    }
```

Elicit from class what the code means and have the volunteers act it out.

Group Work

Pennies or hard candies. Groups of three. One person directs what the code is saying , another acts out, the third acts as the output receiver. Rotate roles in each of the four problems.

Assume a method, givePennies(int numPennies); has been built that passes pennies to another thing, ie the actor to the output receiver (a bit of pseudocode here). Example givePennies(10). Just means give 10 pennies to the receiver.

You can give them this table to fill out as an exit ticket, and do the assessment on the back

	Code	Explanation of what you did (encourage making a table to trace i)

1	for (int i = 1; i < 6; i++){
	GivePennies(i));
	}	

2	for (int i = 3; i < 8; i++){
	GivePennies(i));
	}	

3	for (int i = 2; i < 7; i++){	

	GivePennies(2*i)); }	

4	for (int i = 1; i < 4; i++){
	GivePennies(i*i));
	}	

Shareout: Explain what you did for each of the three scenarios. *Make sure students paid attention to the changing start/end values, and correctly interpreted outputs.*

Assessment: On back of today's handout (table above)

Write a for loop to print the numbers 56 to 70 inclusive (this means it should include both the 56 and 70).

Homework:

Complete this Quizizz.