PLTW COMPUTER SCIENCE

Activity 1.3.7d: Lottery Tickets

For Loops

Introduction

As you've learned in the previous activities, computers can calculate and make decisions. A single calculation or decision would be unimpressive. Computers (and brains!) are impressive because they can make billions of calculations and decisions per second. Most programs don't have billions of instructions. A small handful of instructions repeated in a loop can be very powerful. In *Python*®, for and while loops are two of the control structures for iteration.

Iteration is a powerful idea even without computers. In knitting for example, a simple pair of stitches (knit and purl shown above) can be repeated with iteration in various patterns. What is something you enjoy doing that relies on iteration?

Procedure

A lottery ticket contains five *unique* numbers. (A set of unique numbers does not contain repeated elements.) The winning combination of this lottery is chosen by picking five unique numbers. Define a function `matches(ticket, winners)` that takes two lists and returns an integer that says how many numbers the two lists have in common.

```
In []: matches([11, 12, 13, 14, 15], [3, 8, 12, 13, 17])
Out[]: 2
```