

Activity 14 Assessment

Using Code to Simulate Probability Experiments

Using Code to Simulate Probability Experiments

Executes code that is provided and describes results

“When I click the green flag, the *Coin Toss* application tosses a coin and shows whether it is heads or tails. I can execute it many times to simulate lots of tosses.”

Reads and interprets code, predicting the output

```

when clicked
  set coinToss to pick random 0 to 1
  change totalTosses by 1
  switch costume to coinToss
  if coinToss = 0 then
    change totalHeads by 1
  else
    change totalTails by 1
  
```

“This application simulates tossing a coin by picking either 0 or 1 at random and shows whether heads or tails is tossed. If I execute it lots of times, I should get heads about half the time.”

Understands the use of subprograms and repeats in programs

“By adding the repeat to the *Coin Toss* application, it makes it much easier to use. Instead of pressing the green flag lots of times, I can just simulate many trials by changing the repeat number to a large number.”

Writes and debugs code to determine experimental probabilities

“Once the program has simulated tossing the coin 1000 times, I can use the results to calculate the experimental probability of tossing tails. I’ll create a variable called **tailsEP** and set it to be equal to the number of tails tossed divided by the total number of tosses. The code is:

```

set tailsEP to totalTails / totalTosses
  
```

Observations/Documentation