(**POGIL**) Record your team's results for each run in a neatly organized table. That is, if you did 20 runs of 100 coin flips each, your table should have 20 rows of results, with percentages for each row and totals at the bottom.

|  |  |  |
| --- | --- | --- |
| **Run #** | **Heads** | **Tails** |
| 1 | 43 | 57 |
| 2 | 54 | 46 |
| 3 | 48 | 52 |
| 4 | 46 | 54 |
| 5 | 56 | 44 |
| 6 | 45 | 55 |
| 7 | 53 | 47 |
| 8 | 49 | 51 |
| 9 | 46 | 54 |
| 10 | 52 | 48 |
| 11 | 43 | 57 |
| 12 | 45 | 55 |
| 13 | 39 | 61 |
| 14 | 47 | 53 |
| 15 | 51 | 49 |
| 16 | 49 | 51 |
| 17 | 56 | 44 |
| 18 | 51 | 49 |
| 19 | 59 | 41 |
| 20 | 47 | 53 |
| **Totals** | **979** | **1021** |

1. (**POGIL**) According to your results, does App Inventor's PRNG provide a good model of randomness?

**Answer**

|  |
| --- |
| Yes, it does because the answer is pretty close. If other data shows that it is farther apart, it is possible that it is not a good random number generator. But, with our data, it is not perfect but is very good. |

2. (**POGIL**) A friend claims that flipping a coin 100 times and finding that it comes up heads only 45% of the time shows that the coin is biased. How should you reply?

**Answer**

|  |
| --- |
| It does not show that the coin is biased. As it is random, it can randomly give answers that lean toward one side. As the number of flips gets larger, you become more likely to have results closer to normal. |

3. Because we are using a coin flip app, this experiment really tests only that App Inventor's *random integer* block generates a 1 around half the time. Is this a sufficient test for App Inventor's PRNG? What other experiments might you do to increase your confidence in App Inventor’s PRNG?

**Answer**

|  |
| --- |
| **We could have app inventor test numbers from a larger range giving it more room for error or success. This would definitely increase my confidence in App Inventor’s PRNG** |