NETLOGO - CT\_1\_COIN.NLOGO

* Download and install netlogo.

Then work through the steps below thoroughly – do not speed through them! Write up your findings along the way!

The program simulates flipping a coin. Red represents heads and blue tails.

USE

* Open the model, press ”setup”.
* Flip the coin a few times by pressing the ”go”-button.
  + What’s your impression – are both outcomes equally likely?
* Flip the coin 10 more times.
  + Does that change your hypothesis?
* IF you were to perform the experiment 100 times, how many heads and tails would you expect from your experience thus far?

MODIFY

* Switch to the “code”-tab.
  + Figure out how the “go10”-button is programmed.
  + Then program the “go100” and “go1200” buttons.

USE

* Flip the coin a 100 times.
  + Was your expectation met?
* Flip the coin 1200 times more.
  + How many heads and tails now?
  + How does that fit your expectation?
  + Do you think the coin is biased or fair?

MODIFY

* Enter the ”code”-tab.
  + Change the color of heads to yellow.
    - Reenter the “interface”-tab. A lot of the monitors needs to be edited to work properly after this change.
  + Figure out where the probability for heads is in the code.
  + Change the probability for heads to 40%.

USE

* + Go through the simulation from ”USE” again. How many repetitions do you need before the outcome reflects the code?

REFLECT

* How does that relate to polls before an election?
* What code changes are necessary to toss the coin 50 times?

CREATE

* Change the code and the interface such that 50 tosses can be simulated. (Get help here: <https://ccl.northwestern.edu/netlogo/docs/tutorial3.html> )
* Which changes should be made if the model were to be used to register die rolls, where 6 is the desired outcome and all the others are not? (in other words: to represent success and failure in a binomial trial)