

CHAPTER 5: Probability

5.1a

probability: the mathematics of chance
 why flip a coin before a football game?
 equal chance, "fair", random

*Chance behavior is unpredictable in the short run, but very predictable in the long run

Random Things we can use

- coin
- roulette wheel (spinner)
- dice
- draw out of a hat
- deck of cards
- calculator
- random digit table

The Law of Large Numbers

the more we repeat a chance process, the closer the proportion of an outcome will reach the true probability

Probability

Describes the proportion of times an outcome would occur after many trials

- Always between 0 and 1
- Can be written as a decimal, %, or fraction
- Probability of 1 means that an event is certain to happen
- Probability of 0 means that an event cannot occur
- $\frac{\text{\# of favorable outcomes}}{\text{total \# of outcomes}}$