

Racing Game (One Die)

Suggestions

Several games can be based on this applet. Possible math goals of each game are indicated in parenthesis.

Game 1 (introduction of multiple-outcome events; set operations; computing particular probabilities):

Set the controls on the applet in such a way that Player 1 wins if the die shows 1 or 2, and Player 2 wins if it shows 3, 4, 5, or 6. Also, set the number of steps to two. The game is not fair. Just how unfair is it?

Simulate many games to find out the chances of each racer winning.

Change winning numbers for the racers. How often do you expect each player to win? Run the program many times. Are the players winning as often as you expected?

Game 2 (multiple-outcome events; set operations; probability intuition):

Set the winning numbers so that Player 1 has 1 and 2, and Player 2 has 3, 4, 5, and 6. Now reset the controls so it takes 3 steps to get to the finish. What happens to the chances of winning? Reset controls to more steps (4, 5, 10). What happens to the chances of winning now? Why?