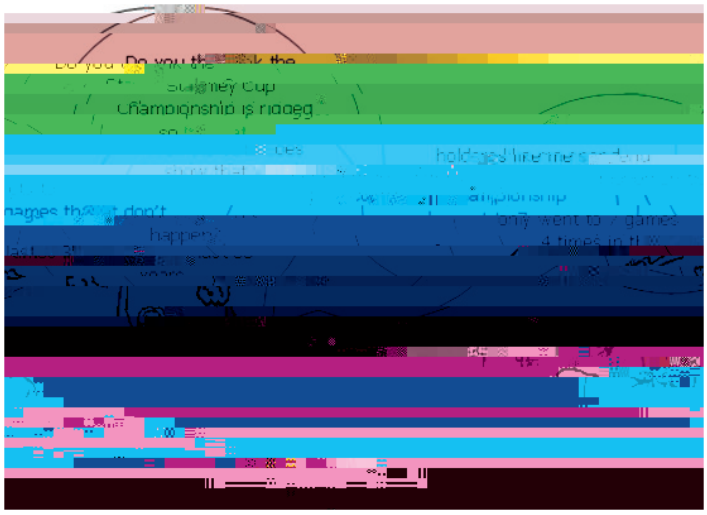
Sports Math

Activity 5 - Is the Stanley Cup Championship Rigged?

What is the probability that the Stanley Cup Championship will last only four games?



Number of Games in a Stanley Cup Championship 1968 - 2002				
	4 Games	5 Games	6 Games	7 Games
Frequency	13	8	10	4

Activity Questions:

Since 1939 the Stanley Cup Championship has been a best-four-out-of-seven series. This means that two teams play until one team has won four games. That team is declared the winner. One possible outcome of a Stanley Cup Championship is that there are seven games.

Sports Math

Activity 5 - Is the Stanley Cup Championship Rigged? - *continued*

1. a) List all the other possible outcomes.
   b) Do you think all the outcomes you listed are equally likely? Explain.
   c) Which outcome do you think is most likely? Give reasons.
2. The Calgary Flames defeated the Montreal Canadiens in 6 games in the 1989 Stanley Cup Championship.
   a) How many games had the Canadiens and the Flames each won after the fifth game?
   b) After five games, the Flames and the Canadiens were given an equal chance of winning the sixth game. At that point which was more likely: that the Stanley Cup Championship would last six games or that it would last seven games? Give reasons for your answer.
3. If the Calgary Flames and the Montreal Canadiens are evenly matched, we can "simulate" a game by tossing a coin. If it comes up heads (H), we call it a Flames win, and if tails (T) comes up, we call it a Flames loss. Suppose after the fifth game, the Flames have won three games and lost two.
   a)Toss a coin to determine whether the Stanley Cup Championship ends in the sixth game or goes to the seventh game.
   b)Repeat part "a" 20 times and record how many times the Stanley Cup Championship goes seven games.
   c)Use your tally in part b) to decide whether it is more likely that a Stanley Cup Championship will go six or seven games.

Simulating a Stanley Cup Championship

For this part of the activity you will need: a coin, a piece of paper and a pencil.

Activity Instructions:

1. Decide with your partner who will be the coin tosser and who will be the recorder.
2. The coin tosser flips the coin until either four heads or four tails are obtained. The recorder tallies the number of heads and tails.

Heads	Tails
III	II

Sports Math

Activity 5 - Is the Stanley Cup Championship Rigged? - *continued*

This is called one trial of the simulation. The recorder then tallies the result of this trial in a table like this:

Frequency of Outcomes			
4 Tails	3 Tails, 1 Dog	2 Tails, 2 Dogs	1 Tail, 3 Dogs

Sports Math

Activity 5 - Is the Stanley Cup Championship Rigged? - *Continued*

Solutions:

1a) 4 games, 5 games or 6 games.

b) If one team is much better than the other, then 4 games is the most likely outcome. However, if the teams are evenly matched, 4 games is less likely than a larger number of games.

c) Since both teams have to be very good to get to the Stanley Cup Championship, they will usually be fairly evenly matched, so it is more likely that the Stanley Cup Championship will last 6 or 7 games.

2a) Since the Flames won the Stanley Cup Championship in 6 games, they must have won the sixth game and that must have been their fourth win; therefore, after 5 games they must have had 3 wins, leaving Montreal with 2 wins. This is the only possibility.

b) After 5 games, the Flames had 3 wins and the Canadiens had 2 wins. If Calgary wins the sixth game, that gives them four wins, so the Championship ends in 6 games. If the Canadiens win the sixth game, the series is tied at 3 wins each, so the Stanley Cup Championship must go to a seventh game. If both teams are given an equal chance of winning the sixth game, then a 6-game Stanley Cup Championship has the same probability as a 7-game Championship.

3a) Your answer will vary.

b) After 20 tosses, the frequency of Stanley Cup Championships that go 7 games should be somewhere between 7 and 13.

c) See part b.