Native American Dice Game Activity

Use a set of 4 stick dice for this activity. Designate two as the "male" dice and two as the "female" dice. Players take turns throwing the dice. A player continues to throw as long as he earns points. If he earns no points on a throw, the play passes to his opponent. Points are scored as follows:

- All marked sides up or all down: 2 points
- Both male up and female down or vice versa: 1 point
- Any other combination: 0 points

1. Play the game with an opponent till each person has had at least 20 turns. Tally your tosses in the chart below:

Player	All faces up (2)	All faces down (2)	2 Male up, 2 female down (1)	2 female up, 2 male down (1)	Other (0)
1					
2					

2. Examine the data in your chart. Which outcomes appear to be most frequent? Why do you think this is so?
3. Estimate the probability of having all faces up. _____

   Estimate the probability of having all faces down. _____

4. Assuming the probability of a face up or a face down was equal, determine the probability of obtaining each of the 5 outcomes listed in the chart.

5. Use the probabilities from #4 and the point values from the chart to determine the expected value for one toss of the dice in this game.

6. On average, how many tosses of the dice would you expect to make before turning the dice over to your opponent. Justify your response.