Let's Make a Deal!

Scenario

Imagine that the set of 1960s game show <u>Let's Make a Deal</u> has three closed doors. Behind one of these doors is a car; behind the other two are goats. The contestant does not know where the car is, but the host does.

The contestant picks a door and the host opens one of the remaining doors, one he knows doesn't hide the car. If the contestant has already chosen the correct door, the host is equally likely to open either of the two remaining doors.

After the host has shown a goat (or other non-prize) behind the door that he opens, the contestant is given the option to switch doors.

Questions
- Should the contestant switch doors?
- When presented with this scenario, what percentage of contestants will choose to switch doors?

Hypothesis

Make a hypothesis for each of the above questions. Be sure to explain your reasoning.

Procedure

Work with your team to create a procedure to test your hypotheses. Be sure to think through and write down each step in detail. Be sure each contestant plays the game in isolation (you don't want them to influence each other).

Results

Keep a table/chart of your results. Your table should include the following data:
- How many people switched vs. stayed
- How many people who switched won/lost
- How many people who stayed won/lost

Analysis

Use your results to answer the following questions:
- What is the probability of winning if the contestant switches doors?
- What is the probability of winning if the contestant does NOT switch doors?
- Is the contestant more likely to switch doors or stay with their original choice?

Conclusions

Organize your findings into a presentation. You may choose to write an essay, make a Powerpoint presentation, create a poster, etc. Be sure to advise future "contestants" about what you discovered.