This activity comes from a [Roxy Peck](https://magazine.amstat.org/blog/2017/09/01/30_years_roxypeck/) workshop. She is a professor emerita of **Statistics** at California Polytechnic State University. For years she has been running workshops for instructors on how to teach statistics to promote a deeper understanding of the topics.

This activity is all about trying to understand the meaning behind the p-value, what it is, and why it is important. [Here](https://www.youtube.com/watch?v=0ATsM-ul4iQ) is a video of a version of this activity being done in a classroom (not at PCC) and here is an alternative [explanation](https://amstat.tandfonline.com/doi/full/10.1080/10691898.1994.11910464#.XRUIR-tKiUk) of the activity. This activity is more involved than others, but consistently comes back as one that instructors enjoyed the most from Roxy’s workshops.

This activity requires the following materials:

* Deck of cards (Extra decks of cards can be found in R-402 (though where things are stored can change))
* A prize (candy, cookies, extra credit)

Now, the deck of cards is special. You need to get two decks of cards of the same type, and you need to create two decks that each have the same color card. Also important – implement this activity with replacement!

Timeline for the activity:

* **5 minutes** Speak to students about the game you are going play. Tell them they are going to pick a card from a deck, and if they get a red (or a black, or whatever color, the OPPOSITE color of what you have, depending on your deck), they are going to win a prize. Then have students answer the first three questions on their sheet. Tell them **NOT** to turn over the sheet until after the game is over.
* **5-10 minutes** Open the deck of cards (If you can tape or use a sticker to close the deck and then exaggerate the time it takes to open the deck, it will make the idea of having a standard deck more believable). Take out the Jokers, shuffle the deck, and then have various students choose a card one at a time. Announce each time a student loses. You should notice that students start to wonder what is going on when no one is winning the prize. Play the game as much as you want, but realize that getting the same color four times has a 0.0625 chance of happening, five times has a 0.03125 chance, six times has a 0.015625 change, which all sit around the most common significance levels used in hypothesis testing.
* **15-25 minutes** Have students work in groups to answer the questions on the opposite side of their page, then have a class discussion regarding the results. You could also have the students work for awhile, then have two students from each group move to another group (one clockwise, one counterclockwise) and discuss their answers. Then have them move back and speak to their own group again, and THEN discuss as a class.