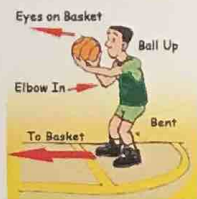


## Lesson 2: Is Mr. Wilcox an 80% free throw shooter?



Mr. Wilcox claims to be an 80% free throw shooter. His students don't believe him and ask him to prove it. He goes to the gym and makes 32 of 50 free throws. Think of the 50 free throws as an SRS from the population of all of Mr. Wilcox's free throws.

1. Assume Mr. Wilcox really is an 80% free throw shooter. How could we use the spinner to simulate shooting free throws?

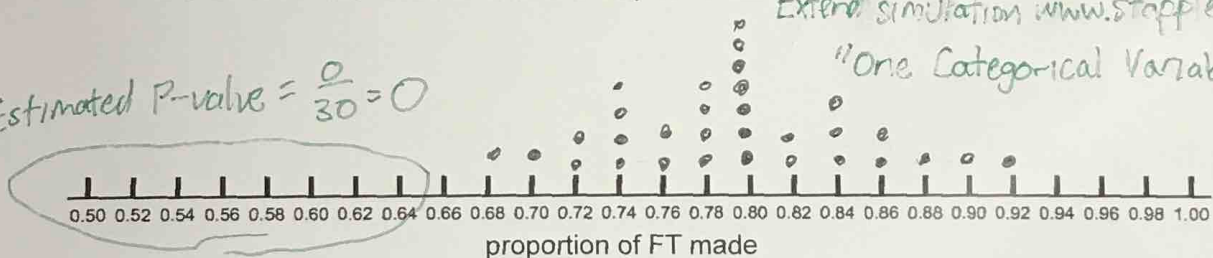
The spinner has 10 sections. Let 8 of them represent a make and 2 of them represent a miss.

2. Use the spinner to simulate Mr. Wilcox taking 50 free throws. What proportion of free throws did he make in your simulation?

$$\frac{37}{50} = 0.74$$

3. Write the proportion of free throws made on a sticker dot and take it to the poster at the front of the room. Sketch the dotplot below.

Estimated P-value =  $\frac{0}{30} = 0$



4. Mr. Wilcox made 32 of 50 free throws (a proportion of 0.64). Is this outcome surprising for a player who makes 80% of their free throws? Explain.

Yes! Assuming Mr. Wilcox is an 80% free throw shooter, there is about a 2% probability of him making 64% or less in a sample of 50 free throws, purely by chance.

5. Based on the simulation, do we have convincing evidence that Mr. Wilcox is makes less than 80% of his free throws? Explain.

Yes! Because this result is surprising (less than 5%) we have strong evidence that Mr. Wilcox is a less than 80% free throw shooter.