Name: _____ Hour: _____ Date: _____

Can You Taste the Rainbow?

Many students claim that they can taste the different colors of Skittles. Today we will conduct an experiment to see if students really can "taste the rainbow".

Working in groups of 4, your team will attempt to "taste" the flavor for a sample of 50 Skittles.

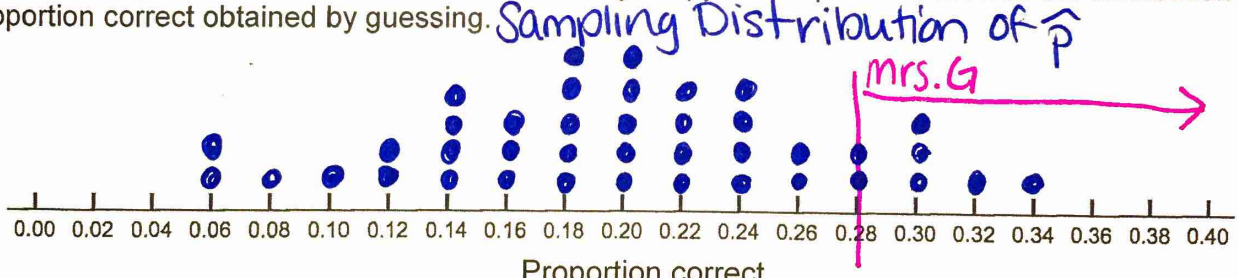
Collect data: **Number correct:** 26 **Total:** 50 **Proportion correct:** 0.52 ← Answers will vary.

1. Do your data provide some evidence that your group can taste the rainbow? Why?

Yes, We tasted more than 20% correctly.

Mrs. Gallas tried to taste the rainbow for a sample of 50 Skittles and correctly identified the flavor for 14 of the Skittles ($\hat{p} = \frac{14}{50} = 0.28$). While these results do provide some evidence that Mrs. Gallas can taste the rainbow (0.28 > 0.20), let's investigate the possibility that she got these results simply by "guessing" the rainbow.

2. Recall the previous "Guess the Rainbow" activity. Copy the dotplot that showed the distribution of proportion correct obtained by guessing.



Shape: Approximately normal $0.2 \times 50 \geq 10$, $0.8 \times 50 \geq 10$ Center: $\mu_{\hat{p}} = 0.2$ Variability: $\sigma_{\hat{p}} = 0.057$

3. Assuming Mrs. Gallas was simply "guessing", how likely is it that she would get ~~16~~ 14 or more correct out of 50?

7/40 = 0.175 ← P-value

4. Do we have convincing evidence that Mrs. Gallas can "Taste the Rainbow"? Explain.

NO, it's not that surprising to get 14/50 or more by just guessing.

P-value < 5% Surprising
P-value > 5% Not surprising