Name :_____Date_____Class_____

Understanding Mean

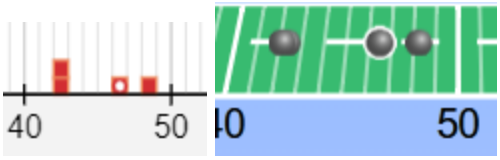
Learning goals

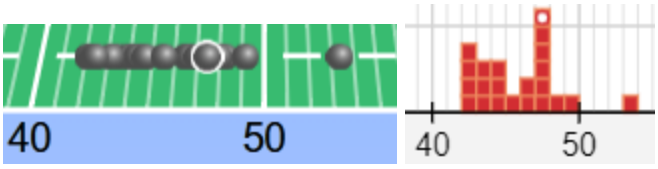
1. Launch projectiles from different launchers and accurately collect data on their trajectories.
2. Understand the concept of variability in data and how it affects the mean.
3. Calculate the mean of the collected data sets for different launchers and analyze the results.
4. Apply mathematical concepts and techniques to analyze experimental data and interpret results

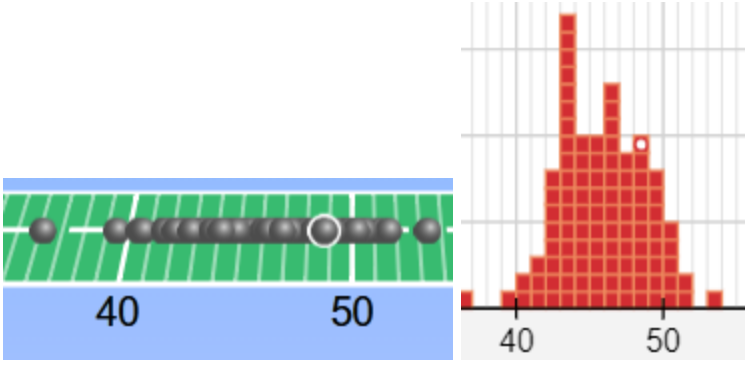
Please share with your colleagues. If your responses are different, try to come up with a consensus.

1. Play with the sim for five minutes playing with numbers and observing outcomes, then list your three most important findings.

2. From the three scenarios at what point do you have enough information to estimate the mean? Justify your answer.

a. 

b. 

c. 

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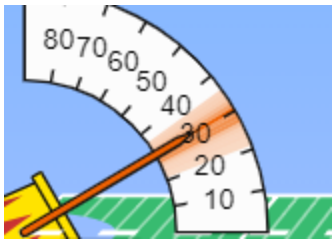
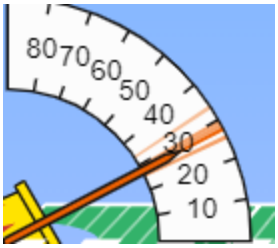
3. Estimate mean launch angle from the following scenarios. Which one is easy to estimate and justify your answer.



a. 131 projectiles were launched.



b. 10 projectiles were launched.

5. In which of the two above you are comfortable with your estimate? why?

6.In what way(s) does (or does not) the number of projectiles influence the confidence you have in your estimate for the mean launch angle?

Calculating Mean

7. Using a launcher and projectile of your choice, perform 40 launches and record the results in the table below.

Distance	Frequency (count)

a. Calculate the mean distance of the projectile using the data from the table.(***Guide learners on how to calculate the mean of the data, encouraging them to recall and use basic addition, multiplication, and division skills.)***

b. What is the mode of the data

Thank you