

Adapted to Nspire from an activity by Mary Mortlock

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Have you ever wondered how many Tootsie Pops™ you could pick up with one hand? If you had a bigger hand, might you be able to pick up even more candy? Have you ever envied the bigger kids at Halloween? In fact, did you ever think you might be able to predict how much candy a person could pick up?

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Our goal with this activity is to investigate the relationship between the size of a person's hand and how many Tootsie Pops™ that person can pick up. If our model is good enough, we can predict the number of pops someone can pick up based on his or her hand span.

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Some people have a larger and/or stronger dominant hand. You must decide as a class, which hand will each person use: the left, the right, the dominant hand, or the weak hand?

Will students get a “practice grab” or just one chance?

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Hand span refers to the distance between the tip of your thumb and the tip of your pinkie. You must agree as a class, how will you measure hand span: with all five fingers outstretched, or with the middle three fingers tucked in?

Will you measure in the air or pushing your hand down on a table or other surface?

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What units will you use to measure hand span: inches, centimeters, or something else?

Why are these questions important? What would happen if everyone used his or her own system for conducting this study?

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We want to use hand span to predict the number of Tootsie Pops™ a person can pick up. Which is the explanatory (predictor) variable, and which is the response variable?

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Each person should measure his or her hand span according to the rules the class agreed upon. Record your pair of data on the spreadsheet on Page 1.10 on your TI-Nspire handheld. Make sure you label the lists with appropriate titles.

Handspan _____

Number of Tootsie Pops™ _____

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Collect the data for the entire class into the lists on Page 1.10. Move to Page 1.11, and create a scatter plot of the data. Describe all the features you see.

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Go back to Page 1.10, and use Linear Regression ($a+bx$) to analyze your data. Draw the line on your graph on Page 1.11. Interpret r and r^2 .

What are the meanings of the intercept and the slope in this context? Do they make sense?

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Go back to Page 1.11, and add a residual plot. Identify and discuss any outliers or influential points.

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Predict the number of Tootsie Pops™ picked up by someone with a hand span of 22 cm and someone with a hand span of 27 cm. Which prediction do you feel is more reliable, and why?

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Discuss sources of error in the data collection.

Do your results show causation? Why or why not?