

NAME: _____

UNIT 4 • DESCRIBING DATA

Lesson 3: Interpreting Linear Models

Problem-Based Task 4.3.1: Learning to Speak

Dr. Lin is a pediatrician. He tracks how a child's vocabulary increases when the child first starts speaking. He records the number of months the child has been speaking, and the number of words spoken each month. His data for three different children is in the table below.

Months speaking	Words spoken
0	5
0	2
0	2
1	32
1	41
1	43
2	82
2	94
2	77
3	96
3	99
3	132
4	170
4	122
4	160

One parent whose child was not involved in the study is concerned that her daughter isn't speaking enough words. When the child had been speaking for 3 months, she spoke 96 words, and now that the child has been speaking for 4 months, she speaks 144 words. What do you think Dr. Lin would say to the concerned parent based on the data he has collected?

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Coaching

- a. Create a scatter plot of the data.

- b. Which two data points could be used to find a line to fit the data?

- c. What are the units of the slope?

- d. Use the units and the problem statement to describe what the slope means in context.

- e. What is the rate of change for the vocabulary of the concerned parent's child?

- f. How does the rate of the increase in the child's vocabulary from part e compare to the slope of the linear model?

- g. What do you think Dr. Lin would say to the concerned parent based on the data he has collected?