

Name: _____ Hour: _____

M-Step Sample Grade 8 Mathematics Performance Task

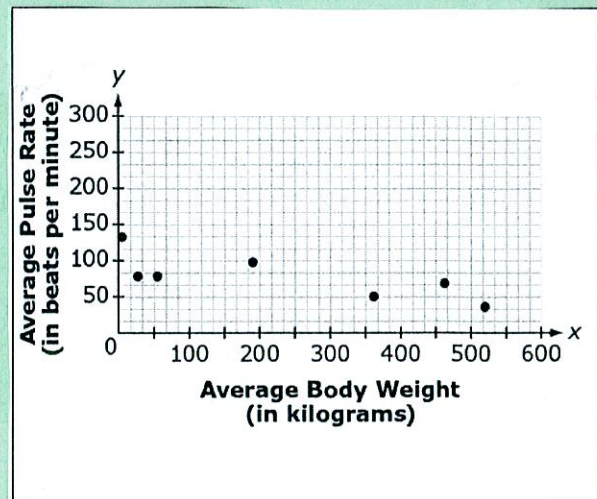
In this task, you will use data to create a model that shows the relationship between animal body weight and pulse rate measures. Then you will examine additional data to evaluate your model.

A study states that the relationship between an animal's pulse rate and body weight is approximately linear. The study data are below.

Table 1 – Average Body Weight and Average Pulse Rate of Seven animals

Animal	Average Body Weight (in kilograms)	Average Pulse Rate (in beats per minute)
Cat	3	130
Goat	28	75
Sheep	56	75
Pig	192	95
Ox	362	48
Cow	465	66
Horse	521	34

1. The data from Table 1 are plotted below. Create a linear model of these data.



2. What is the equation of the line you drew in #1?

3. Interpret the slope of the line from #1 in the context of the situation.

4. **Part A** – Based on the equation from #2, predict the average pulse rate in beats per minute of an animal that weighs 6000 kilograms.

Part B – Explain whether the predicted average pulse rate in Part A is reasonable in the context of the situation.

5. The body weight and pulse rate of a guinea pig and rabbit are given in the table below.

Animal	Average Body Weight (in kg)	Average Pulse Rate (in beats per minute)
Guinea Pig	1	250
Rabbit	2.5	265

If the study had included these data, would this change the model relating average body weight and average pulse rate? How do you know?