

Unit 6 Lesson 8: Analyzing Bivariate Data

1 Speed vs. Step Length (Warm up)

Student Task Statement

A researcher found an association between a dog's stride length and its speed: the longer a dog's steps, the faster it goes. The predicted speed in meters per second, s , as a function of step length in meters, l , is

$$s = 4l - 1.6$$

What does the rate of change of the function tell you about the association between stride length and speed?

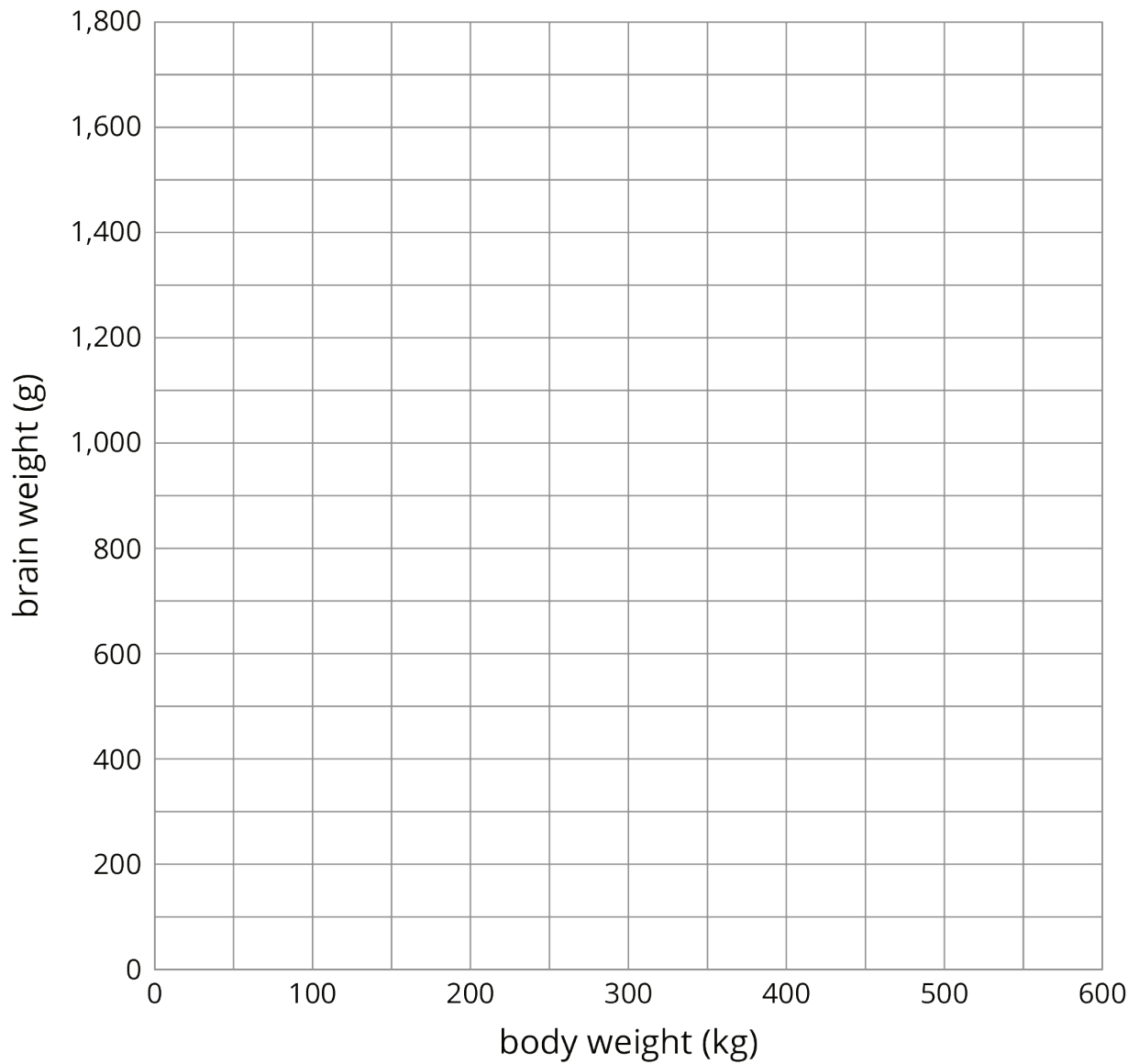
2 Animal Brains

Student Task Statement

Is there an association between the weight of an animal's body and the weight of the animal's brain?

Use the data in the table to make a scatter plot. Are there any outliers?

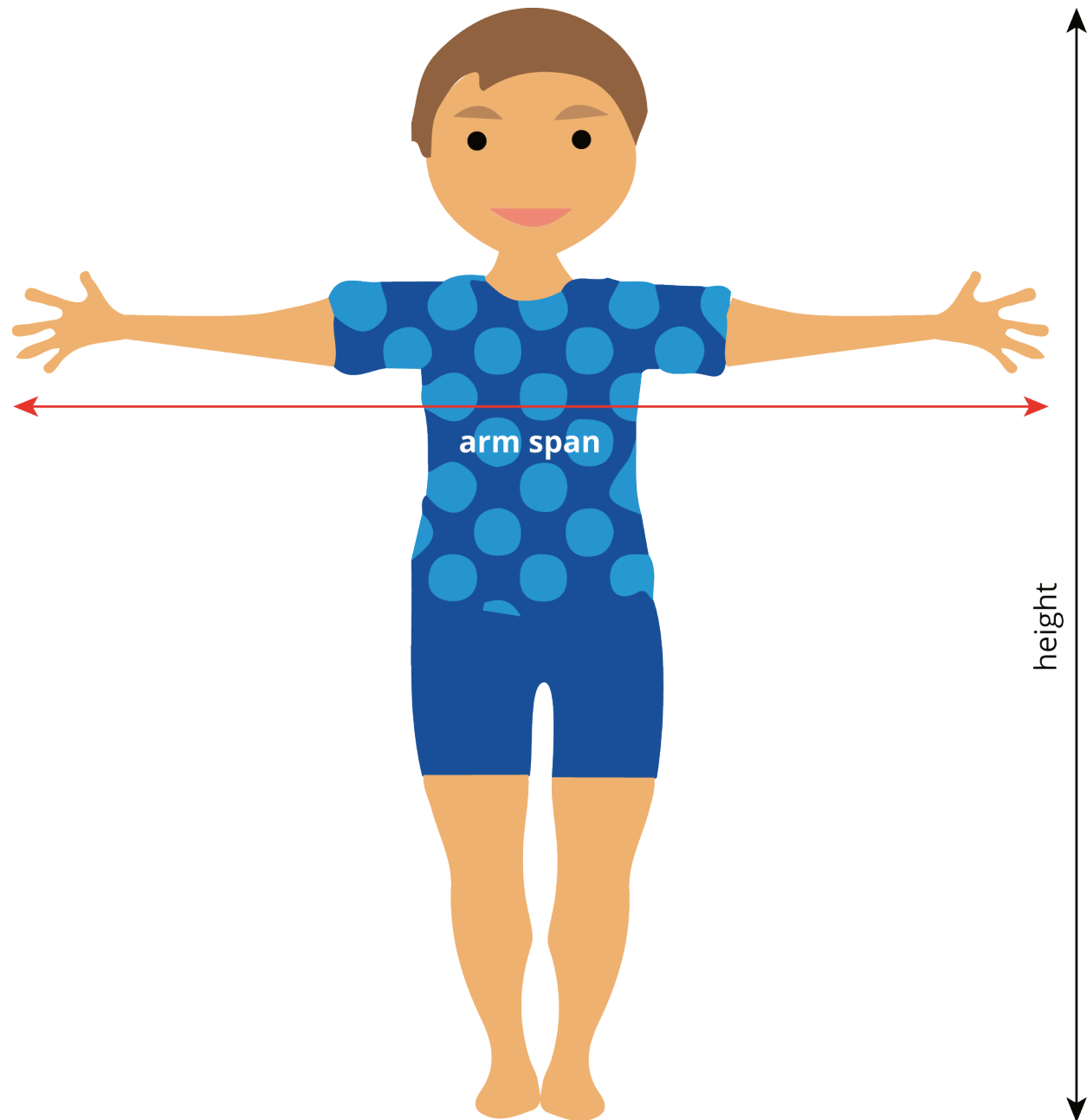
animal	body weight (kg)	brain weight (g)
cow	465	423
grey wolf	36	120
goat	28	115
donkey	187	419
horse	521	655
potar monkey	10	115
cat	3	26
giraffe	529	680
gorilla	207	406
human	62	1,320
rhesus monkey	7	179
kangaroo	35	56
sheep	56	175
jaguar	100	157
chimpanzee	52	440
pig	192	180



1. After removing the outliers, does there appear to be an association between body weight and brain weight? Describe the association in a sentence.
2. Using a piece of pasta and a straightedge, fit a line to your scatter plot, and estimate its slope. What does this slope mean in the context of brain and body weight?
3. Does the fitted line help you identify more outliers?

3 Equal Body Dimensions

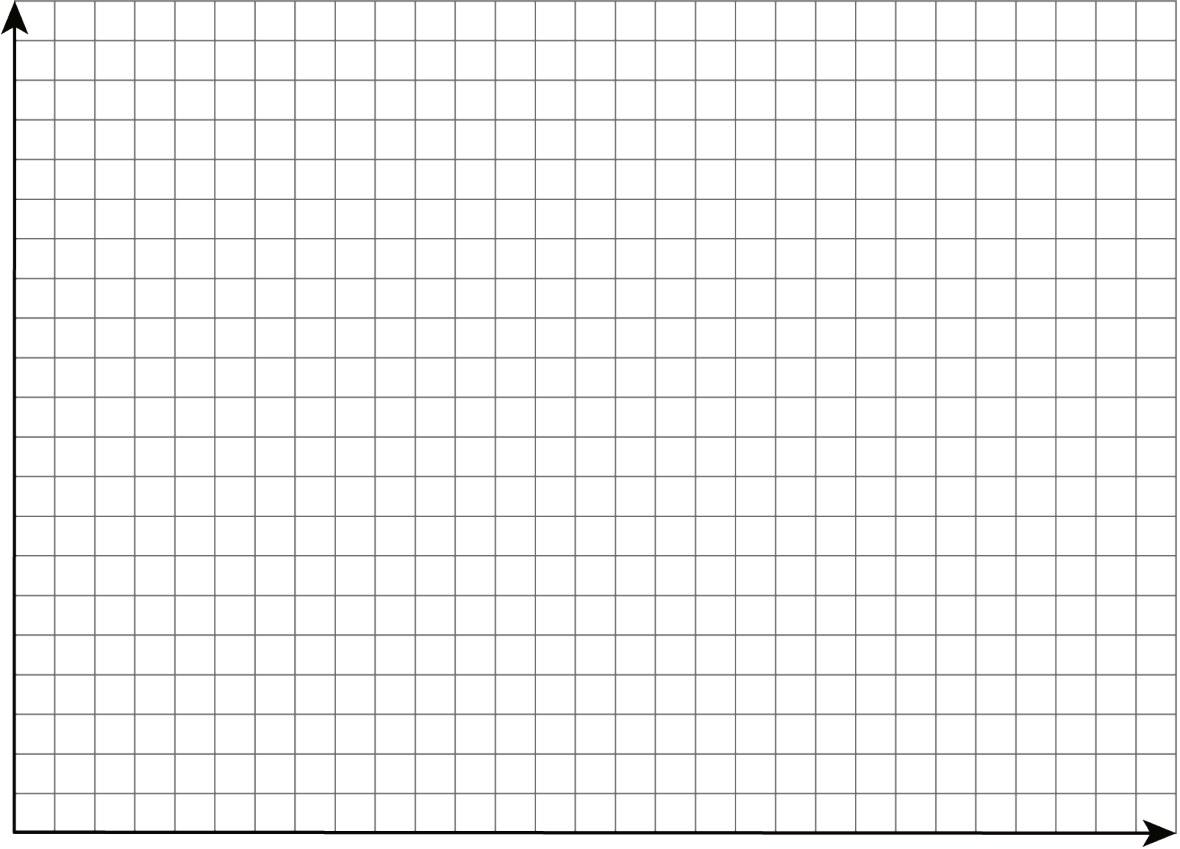
Images for Launch



Student Task Statement

Earlier, your class gathered data on height and arm span.

1. Sometimes a person's arm span is the same as their height. Is this true for anyone in the class?
2. Make a scatter plot for the arm span and height data, and describe any association.



3. Is the line $y = x$ a good fit for the data? If so, explain why. If not, find the equation of a line that fits the data better.
4. Examine the scatter plot. Which person in your class has the *largest* ratio between their arm span and their height? Explain or show your reasoning.