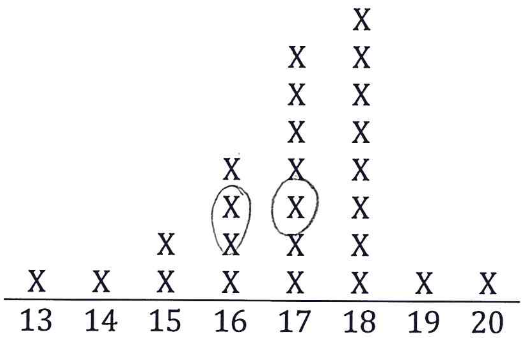
Name Sample Answer Key Date ________ Period ________

Puppy Weights

(Lesson adapted from Illustrative Mathematics)

Below is a dot plot of 25 birth weights, in ounces, of Labrador Retriever puppies born at a kennel in the last 6 months. 13, 14, 15, 15, 16, 16, 16, 16, 17, 17, 17, 17, 17, 17, 17, 18, 18, 18, 18, 18, 18, 18, 18, 19,

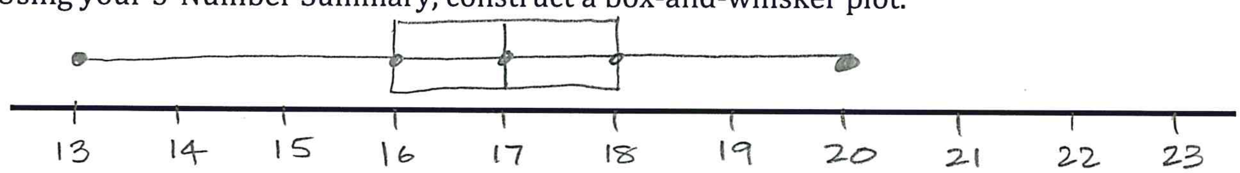


Birth Weight in Ounces

1) Create a 5-Number Summary of the Data represented in the dot plot.

- Median 17
- Q1 16
- Q3 18
- Minimum Value 13
- Maximum Value 20

2) Using your 5-Number Summary, construct a box-and-whisker plot.



Answer the following questions about the data using your box-and-whisker plot.

3) How does the shape of the box-and-whisker plot compare with the dot plot in terms of distribution of puppy weight? (How is it skewed?)

Both the box plot and the dot plot show a slight skewness to the left.

4) What is the ***interquartile range***? 2 What does this value tell us about the puppy weights?

50% of the puppies weigh within 2 ounces of each other at birth.

5) What is a typical birth weight for puppies born at this kennel in the last six months? Explain why you chose this value.

I believe that a typical birth weight is 17 oz because that is the median of our data.

6) Find the ***mean*** weight for the puppies. ______________ How does this value compare to the ***median*** weight? Is this weight surprising? Why or why not?

$$\text{mean} = \frac{423}{25} = 16.92 \approx \underline{17}$$

7) Are there any outliers? Explain. No, the data is fairly symmetrical.

8) How would the box-and-whisker plot change if we excluded the 13-ounce puppy from our data? It would be a perfectly symmetrical data distribution.

9) Find the ***mean absolute deviation*** (MAD). What does this tell you about the variability of the puppy weights? If I use 17 as my mean

MAD = <u>1.12</u>

$$= \frac{4+3+2+2+1+1+1+1+0+1+1+1+1+1+1+1+1+1+2+3}{25}$$

$$= \frac{28}{25}$$

$$= 1.12 \approx 1$$

There is not much variability in the birth weight of the puppies.