Statistics Unit 1 worksheet: Making a histogram and choosing the bin width

Name _____ Date _____ Period _____

1. Priya helped at a school bike safety check and recorded four things about each of the 20 bikes checked:

(a) the brand (four brands); (b) the seat height, in centimeters; (c) the color of its frame; (d) its mass, in kilograms.

For each, say whether the data are numerical or categorical, and whether she should show them in a histogram or a bar graph.

2. Jasmine timed how long each of 18 classmates could stand on one foot with their eyes closed, in whole seconds:

7, 23, 14, 31, 9, 18, 25, 12, 40, 16, 21, 5, 28, 15, 19, 34, 11, 20

Use bins 5 seconds wide, with a value on an edge going in the bar to its right.

(a) Give the first edge, the number of bins and the last bin. (b) Make the frequency table. (c) Describe the histogram: name both axes, give the height of every bar in order, and say which bin shows as a gap.

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3. Sarah measured the hand spans of 14 students, in whole centimeters:

18, 15, 21, 16, 20, 25, 18, 14, 19, 17, 24, 20, 16, 18

She made this frequency table with bins 2 cm wide:

Hand span (cm)	Count
14 to 16	2
16 to 18	3
18 to 20	6
20 to 22	1
24 to 26	2

Her counts add to 14, the number of students, but the table has two mistakes.

(a) Find both mistakes. (b) Write the correct table, with a value on an edge going in the bar to its right. (c) Explain why checking the total did not catch either mistake.

4. Ethan weighed the 22 apples in a crate, each to the nearest gram, and drew a histogram the lesson's way: the first edge is the largest multiple of the width at or below the lightest apple, bins are added until one holds the heaviest, and a value on an edge goes in the bar to its right. His histogram has 7 bins, each 20 g wide, and its first edge is 120 g.

(a) What is the last bin? (b) What can you say about the mass of the lightest apple? Of the heaviest? (c) Mia says the heaviest apple is 145 g heavier than the lightest. Explain why that cannot be.

5. (a) Write 10 arm spans, in whole centimeters, so that a histogram with bins 10 cm wide starting at 130 (a value on an edge going in the bar to its right) has bars 2, 5, 0 and 3 tall, in that order, and at least three of your values sit on a bin edge.

(b) Explain why none of your values can be 150 or 170.

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