Year 9 · Statistics: Picture the Data

Name: _____ Date: _____

Hi! This sheet is all about turning data into pictures that tell a story. You'll build different graphs, pick sensible scales, and even draw a line of best fit to make a prediction. Grab a ruler and a pencil!

Warm-up

1. Name the best type of graph to show how a class's favourite lunch (pie, sushi, sandwich, wrap) is spread across the group.

2. A dot plot shows the number of siblings for 10 students: 0, 1, 1, 1, 2, 2, 3, 0, 1, 4. How many students have exactly 1 sibling?

3. For a scatter plot investigating whether hours of study predicts test score, which variable goes on the x-axis?

4. A frequency table records: Walk 8, Bus 6, Car 5, Bike 1. What is the total number of students surveyed?

Practice

5. The heights (cm) of 12 Year 9 students are: 150, 155, 155, 160, 162, 162, 162, 165, 168, 170, 172, 180. What is a sensible scale for the vertical axis of a histogram of these heights, and why?

6. Complete this frequency table for the number of pets owned by 15 whānau: 0,1,2,1,3,0,2,1,0,4,1,2,0,1,2. Fill in the frequency for each value from 0 to 4.

7. Word problem: Aroha records the temperature at Avondale each day at noon over one week: Mon 14°C, Tue 16°C, Wed 15°C, Thu 18°C, Fri 20°C, Sat 19°C, Sun 17°C. Which graph best shows how temperature changed over the week, and what does the graph show?

8. Word problem: A dairy on Rosebank Road sells hot pies. The owner tracks daily pies sold against the daily high temperature: (12°C, 40 pies), (14°C, 36), (16°C, 30), (18°C, 26), (20°C, 20), (22°C, 15). Describe the relationship you would see on a scatter plot and which variable should be on each axis.

9. Using the dairy data above, draw an eyeballed line of best fit and use it to predict how many pies would be sold on a 17°C day.

10. A survey asked 40 students two questions: Do you play a sport? (Yes/No) and Do you play a musical instrument? (Yes/No). Results: sport & instrument 9, sport only 15, instrument only 6, neither 10. Set up a two-way table and find how many students play a sport in total.

Challenge

11. Ten Year 9 students recorded their weekly screen time (hours) and their hours of sleep per night: (5,9), (10,8.5), (15,8), (20,7.5), (25,7), (30,6.5), (12,8.2), (22,7.3), (8,8.7), (28,6.8). (a) Which variable is explanatory? (b) Describe the relationship. (c) Draw a line of best fit and predict the sleep for a student with 18 hours of screen time.

12. A journalist shows a bar graph where the vertical axis starts at 40 (not 0) to compare test averages of two classes: Class A = 62, Class B = 68. Explain why this scale can mislead readers, and describe a better visualisation choice for comparing the full spread of each class's scores.