# Year 4 · Statistics: Picture the Data

Name: _____ Date: _____

Hi there! This sheet is all about turning numbers into dot plots and bar graphs so we can spot patterns. Remember to give every graph a clear title, label your axes, and start your scale at 0!

## Warm-up

1. A dot plot shows how many pets some tamariki have. There are 3 dots above the number 2. How many children have exactly 2 pets?

2. On a bar graph, the scale on the side goes 0, 2, 4, 6, 8. What number should the scale always start at?

3. Name the two kinds of graph we use for numerical data in this unit.

4. A bar graph is missing its heading. Which part tells us the purpose of the graph, the title or the axis units?

## Practice

5. Mila asked 5 friends how many books they read last week. Their answers were: 1, 3, 2, 1, 3. Draw a dot plot for the numbers 0 to 4 and put the right number of dots above each value.

6. Here are the scooters counted outside four classrooms: Room 1 has 4, Room 2 has 6, Room 3 has 3, Room 4 has 5. On a bar graph with a scale going up in 1s, how tall would the tallest bar be?

7. Using the same scooter data (4, 6, 3, 5), how many scooters were counted altogether?

8. A dot plot titled 'Goals scored by the Avondale team each game' shows: 0 goals (2 dots), 1 goal (3 dots), 2 goals (1 dot), 3 goals (1 dot). How many games were played in total?

9. Word problem: Noa counted the colours of jandals at the beach. He found 5 blue, 2 red, 4 green and 1 yellow. He wants to make a bar graph. What should the height of the 'green' bar be, and which colour bar is the shortest?

10. Word problem: Aria surveyed her class about how many glasses of water they drank. She recorded: 2, 3, 2, 4, 2, 3. If she makes a dot plot, which number of glasses has the most dots, and how many dots is that?

## Challenge

11. Kauri made a bar graph of pieces of fruit sold at the school gala: apples 8, bananas 6, oranges 10, pears 4. He wants his scale to go up in 2s starting at 0. List the numbers that would be on his scale, and say how many

gridlines (steps) high the 'oranges' bar reaches.

12. Two dot plots show test scores for Room 5 and Room 6. In Room 5 the dots are spread from 3 to 9. In Room 6 the dots are bunched together from 6 to 8. Write one sentence comparing the variation (spread) in the two rooms.

## Answer key (for parents and tutors)

1. A dot plot shows how many pets some tamariki have. There are 3 dots above the number 2. How many children have exactly 2 pets?
   **Each dot stands for one child. 3 dots above the number 2 means 3 children have exactly 2 pets.**
2. On a bar graph, the scale on the side goes 0, 2, 4, 6, 8. What number should the scale always start at?
   **The scale should always start at 0. Starting at 0 keeps the bars fair to compare.**
3. Name the two kinds of graph we use for numerical data in this unit.
   **Dot plots and bar graphs.**
4. A bar graph is missing its heading. Which part tells us the purpose of the graph, the title or the axis units?
   **The title. It tells us the purpose, for example 'Favourite fruit of Room 6'.**
5. Mila asked 5 friends how many books they read last week. Their answers were: 1, 3, 2, 1, 3. Draw a dot plot for the numbers 0 to 4 and put the right number of dots above each value.
   **Draw a number line labelled 0, 1, 2, 3, 4 with the title 'Books read last week'. Above 0 put 0 dots, above 1 put 2 dots (two friends said 1), above 2 put 1 dot, above 3 put 2 dots, above 4 put 0 dots. Total dots = 5, matching 5 friends.**
6. Here are the scooters counted outside four classrooms: Room 1 has 4, Room 2 has 6, Room 3 has 3, Room 4 has 5. On a bar graph with a scale going up in 1s, how tall would the tallest bar be?
   **The tallest count is Room 2 with 6 scooters, so the tallest bar reaches 6 on the scale.**
7. Using the same scooter data (4, 6, 3, 5), how many scooters were counted altogether?
   **4 + 6 + 3 + 5 = 18 scooters altogether.**
8. A dot plot titled 'Goals scored by the Avondale team each game' shows: 0 goals (2 dots), 1 goal (3 dots), 2 goals (1 dot), 3 goals (1 dot). How many games were played in total?
   **Add all the dots: 2 + 3 + 1 + 1 = 7 games in total.**
9. Word problem: Noa counted the colours of jandals at the beach. He found 5 blue, 2 red, 4 green and 1 yellow. He wants to make a bar graph. What should the height of the 'green' bar be, and which colour bar is the shortest?
   **The green bar should reach 4. The shortest bar is yellow, with a height of 1 (only 1 yellow pair).**
10. Word problem: Aria surveyed her class about how many glasses of water they drank. She recorded: 2, 3, 2, 4, 2, 3. If she makes a dot plot, which number of glasses has the most dots, and how many dots is that?
    **Count each value: 2 appears 3 times, 3 appears 2 times, 4 appears 1 time. The value 2 has the most dots, with 3 dots.**
11. Kauri made a bar graph of pieces of fruit sold at the school gala: apples 8, bananas 6, oranges 10, pears 4. He wants his scale to go up in 2s starting at 0. List the numbers that would be on his scale, and say how many gridlines (steps) high the 'oranges' bar reaches.
    **The scale in 2s starting at 0, going high enough for 10, is: 0, 2, 4, 6, 8, 10. The oranges bar reaches 10, which is 5 steps up the scale (0→2→4→6→8→10).**
12. Two dot plots show test scores for Room 5 and Room 6. In Room 5 the dots are spread from 3 to 9. In Room 6 the dots are bunched together from 6 to 8. Write one sentence comparing the variation (spread) in the two rooms.
    **Room 5 has more variation because its scores spread across a wider range (3 to 9, a range of 6), while Room 6's scores are bunched together in a smaller range (6 to 8, a range of 2). This means Room 6's results are more similar to each other.**