Year 5 · Statistics: Grouping Data and Clustered Bar Graphs

Name: _____ Date: _____

Hi! This sheet helps you practise putting number data into groups in a table, and drawing clustered bar graphs where coloured bars sit side-by-side. Take your time and use a ruler for your graphs.

Warm-up

1. A rainfall reading was 2.4 mm. Which group does it belong in: 0–0.99, 1–1.99, 2–2.99, or 3–3.99?

2. Tally these heights into the group 1.0–1.49 m: 1.2 m, 1.45 m, 1.6 m, 1.05 m. How many fit the group?

3. On a bar graph, what is a 'key' used for?

4. A clustered bar graph shows boys and girls at each year level. How many bars would sit side-by-side above 'Year 5'?

Practice

5. Aroha measured the lengths (in metres) of 10 skateboards at the Avondale skate park: 0.7, 0.8, 1.2, 1.5, 1.3, 0.9, 1.8, 1.1, 0.6, 1.4. Make a grouped table using the ranges 0–0.99, 1–1.99, 2–2.99 and write the count for each group.

6. Here are the times (in seconds) 8 students took to run 50 m: 9.2, 10.5, 11.8, 9.9, 12.3, 10.1, 11.2, 12.9. Group them into 9–9.99, 10–10.99, 11–11.99 and 12–12.99. How many are in each group?

7. A class recorded how much rain (in mm) fell each day for a week: 0.4, 1.5, 2.1, 0.8, 1.2, 3.4, 2.7. Using the groups 0–0.99, 1–1.99, 2–2.99, 3–3.99, which group has the most days?

8. Word problem: Vertex Academy asked Year 4 and Year 5 students their favourite lunch. Year 4: pies 6, sushi 4, sandwiches 5. Year 5: pies 3, sushi 8, sandwiches 4. Describe how you would set up a clustered bar graph for this data, including the axes and key.

9. Word problem: Using the lunch data above, how many more Year 5 students than Year 4 students chose sushi, and which year group chose more pies?

10. A group of tomatoes were weighed (in kg): 0.15, 0.22, 0.35, 0.18, 0.29, 0.41, 0.33. Group them into 0–0.09, 0.10–0.19, 0.20–0.29, 0.30–0.39, 0.40–0.49 and give the count for each group.

Challenge

11. Two shops recorded drinks sold on Saturday and Sunday. Shop A: Saturday 40, Sunday 55. Shop B: Saturday 60, Sunday 45. If you drew a clustered bar graph with the two days on the horizontal axis, which day would have the taller total of both bars combined, and by how much?

12. A scientist measured the lengths (in cm) of 12 fish: 5.2, 6.8, 5.9, 7.4, 6.1, 5.5, 8.2, 7.9, 6.3, 5.8, 7.1, 8.6. Group them into 5–5.99, 6–6.99, 7–7.99, 8–8.99. Then work out what fraction of the fish are 7 cm or longer.

Answer key (for parents and tutors)

1. A rainfall reading was 2.4 mm. Which group does it belong in: 0–0.99, 1–1.99, 2–2.99, or 3–3.99?
   2.4 is between 2 and 2.99, so it belongs in the group 2–2.99 mm.
2. Tally these heights into the group 1.0–1.49 m: 1.2 m, 1.45 m, 1.6 m, 1.05 m. How many fit the group?
   Check each: 1.2 (yes), 1.45 (yes), 1.6 (no, it is 1.5 or more), 1.05 (yes). So 3 heights fit the group 1.0–1.49 m.
3. On a bar graph, what is a 'key' used for?
   A key explains what each colour of bar means, so the reader knows which variable each coloured bar stands for.
4. A clustered bar graph shows boys and girls at each year level. How many bars would sit side-by-side above 'Year 5'?
   Two bars sit side-by-side above Year 5, one coloured bar for boys and one coloured bar for girls.
5. Aroha measured the lengths (in metres) of 10 skateboards at the Avondale skate park: 0.7, 0.8, 1.2, 1.5, 1.3, 0.9, 1.8, 1.1, 0.6, 1.4. Make a grouped table using the ranges 0–0.99, 1–1.99, 2–2.99 and write the count for each group.
   Sort into groups. 0–0.99: 0.7, 0.8, 0.9, 0.6 = 4 boards. 1–1.99: 1.2, 1.5, 1.3, 1.8, 1.1, 1.4 = 6 boards. 2–2.99: none = 0. Table: 0–0.99 → 4, 1–1.99 → 6, 2–2.99 → 0. Total = 4 + 6 + 0 = 10, which matches the 10 measurements.
6. Here are the times (in seconds) 8 students took to run 50 m: 9.2, 10.5, 11.8, 9.9, 12.3, 10.1, 11.2, 12.9. Group them into 9–9.99, 10–10.99, 11–11.99 and 12–12.99. How many are in each group?
   9–9.99: 9.2, 9.9 = 2 students. 10–10.99: 10.5, 10.1 = 2 students. 11–11.99: 11.8, 11.2 = 2 students. 12–12.99: 12.3, 12.9 = 2 students. Each group has 2 students, and 2 + 2 + 2 + 2 = 8, matching the 8 times.
7. A class recorded how much rain (in mm) fell each day for a week: 0.4, 1.5, 2.1, 0.8, 1.2, 3.4, 2.7. Using the groups 0–0.99, 1–1.99, 2–2.99, 3–3.99, which group has the most days?
   0–0.99: 0.4, 0.8 = 2 days. 1–1.99: 1.5, 1.2 = 2 days. 2–2.99: 2.1, 2.7 = 2 days. 3–3.99: 3.4 = 1 day. The three groups 0–0.99, 1–1.99 and 2–2.99 each have 2 days, so they are tied for the most days (2 each).
8. Word problem: Vertex Academy asked Year 4 and Year 5 students their favourite lunch. Year 4: pies 6, sushi 4, sandwiches 5. Year 5: pies 3, sushi 8, sandwiches 4. Describe how you would set up a clustered bar graph for this data, including the axes and key.
   Put the three lunch types (pies, sushi, sandwiches) along the horizontal axis. Put the number of students (0 to 8, going up in ones or twos) on the vertical axis. Above each lunch type draw two bars side-by-side: one colour for Year 4 and a different colour for Year 5. Add a key showing, for example, blue = Year 4 and red = Year 5. Bar heights: pies (Year 4 = 6, Year 5 = 3), sushi (Year 4 = 4, Year 5 = 8), sandwiches (Year 4 = 5, Year 5 = 4).
9. Word problem: Using the lunch data above, how many more Year 5 students than Year 4 students chose sushi, and which year group chose more pies?
   Sushi: Year 5 = 8, Year 4 = 4, so 8 − 4 = 4 more Year 5 students chose sushi. Pies: Year 4 = 6 and Year 5 = 3, so Year 4 chose more pies (6 is greater than 3).
10. A group of tomatoes were weighed (in kg): 0.15, 0.22, 0.35, 0.18, 0.29, 0.41, 0.33. Group them into 0–0.09, 0.10–0.19, 0.20–0.29, 0.30–0.39, 0.40–0.49 and give the count for each group.
    0–0.09: none = 0. 0.10–0.19: 0.15, 0.18 = 2. 0.20–0.29: 0.22, 0.29 = 2. 0.30–0.39: 0.35, 0.33 = 2. 0.40–0.49: 0.41 = 1. Total = 0 + 2 + 2 + 2 + 1 = 7, matching the 7 tomatoes.
11. Two shops recorded drinks sold on Saturday and Sunday. Shop A: Saturday 40, Sunday 55. Shop B: Saturday 60, Sunday 45. If you drew a clustered bar graph with the two days on the horizontal axis, which day would have the taller total of both bars combined, and by how much?
    Saturday total = Shop A 40 + Shop B 60 = 100 drinks. Sunday total = Shop A 55 + Shop B 45 = 100 drinks. Both days combine to 100 drinks, so neither is taller, the totals are equal (a difference of 0).
12. A scientist measured the lengths (in cm) of 12 fish: 5.2, 6.8, 5.9, 7.4, 6.1, 5.5, 8.2, 7.9, 6.3, 5.8, 7.1, 8.6. Group them into 5–5.99, 6–6.99, 7–7.99, 8–8.99. Then work out what fraction of the fish are 7 cm or longer.
    5–5.99: 5.2, 5.9, 5.5, 5.8 = 4 fish. 6–6.99: 6.8, 6.1, 6.3 = 3 fish. 7–7.99: 7.4, 7.9, 7.1 = 3 fish. 8–8.99: 8.2, 8.6 = 2 fish. Total = 4 + 3 + 3 + 2 = 12. Fish 7 cm or longer are the 7–7.99 group (3) plus the 8–8.99 group (2) = 5 fish. Fraction = 5 out of 12, written as 5/12.