Year 5 · Statistics: Measuring and Matching Data

Name: _____ Date: _____

Hi! This sheet helps you practise measuring things carefully and rounding to the right place, plus collecting data that has two features for each person. Take your time and show your thinking!

Warm-up

1. Round 47 centimetres to the nearest 10 centimetres.

2. A pencil measures 13.6 cm. Round its length to the nearest centimetre.

3. True or false: bivariate data means each person has two pieces of information recorded about them.

4. A ribbon is 8.2 metres long. Round it to the nearest metre.

Practice

5. Mere measures the heights of four kūmara plants: 24.3 cm, 24.7 cm, 25.2 cm and 24.5 cm. Round each height to the nearest centimetre.

6. Why is it important to say 'measure to the nearest centimetre' before collecting length data for a class survey?

7. At Avondale Primary, Tane records what each student does at lunchtime (plays sport, reads, or eats with friends) and whether they are a boy or a girl. How many variables is Tane collecting for each student, and what type of data is this?

8. Aroha measures the arm span of five friends, rounding to the nearest 5 centimetres. Her raw measurements are 122 cm, 128 cm, 131 cm, 124 cm and 137 cm. Round each to the nearest 5 cm.

9. A class collected bivariate data on pets. They wrote down each student's favourite pet (dog, cat, or fish) and their gender. Here are the counts: Boys, dog 6, cat 2, fish 3. Girls, dog 4, cat 7, fish 1. How many students altogether, and which pet was chosen most often overall?

10. Sione needs to measure the temperature of the school pool. His thermometer shows 19.8°C. The rule says round to the nearest whole degree. What temperature does he record, and why should everyone use the same rounding rule?

Challenge

11. A class of 24 students recorded two things each: how they get to school (walk, bus, or car) and their gender. Boys: walk 5, bus 3, car 4. Girls: walk 6, bus 2, car 4. Make a statement comparing how boys and girls travel, using the data.

12. Kaia measures the length of the classroom in three ways. Rounded to the nearest metre she gets 8 m. Rounded to the nearest 10 centimetres she gets 780 cm. Rounded to the nearest centimetre she gets 784 cm. Explain why the three answers are different but not wrong, and which measurement is the most precise.

Answer key (for parents and tutors)

1. Round 47 centimetres to the nearest 10 centimetres.
   Look at the ones digit, which is 7. Because 7 is 5 or more, we round up. 47 cm rounds up to 50 cm.
2. A pencil measures 13.6 cm. Round its length to the nearest centimetre.
   The digit after the decimal point is 6. Because 6 is 5 or more, round up. 13.6 cm rounds to 14 cm.
3. True or false: bivariate data means each person has two pieces of information recorded about them.
   True. 'Bi' means two. Bivariate data records two variables for each subject, for example a student's favourite sport and their year level.
4. A ribbon is 8.2 metres long. Round it to the nearest metre.
   The digit after the decimal point is 2. Because 2 is less than 5, round down. 8.2 m rounds to 8 m.
5. Mere measures the heights of four kūmara plants: 24.3 cm, 24.7 cm, 25.2 cm and 24.5 cm. Round each height to the nearest centimetre.
   24.3 → the .3 is less than 5, so round down to 24 cm. 24.7 → the .7 is 5 or more, round up to 25 cm. 25.2 → the .2 is less than 5, round down to 25 cm. 24.5 → the .5 is 5 or more, round up to 25 cm. Answers: 24 cm, 25 cm, 25 cm, 25 cm.
6. Why is it important to say 'measure to the nearest centimetre' before collecting length data for a class survey?
   It tells everyone the same rounding rule so all measurements are recorded the same way. Without a rule, one person might write 24 cm and another 24.3 cm for the same length, making the data hard to compare fairly.
7. At Avondale Primary, Tane records what each student does at lunchtime (plays sport, reads, or eats with friends) and whether they are a boy or a girl. How many variables is Tane collecting for each student, and what type of data is this?
   Tane records two things for each student: the lunchtime activity AND whether they are a boy or girl. Two variables per subject means this is bivariate data. Both variables are categorical (they sort people into groups rather than being measurements).
8. Aroha measures the arm span of five friends, rounding to the nearest 5 centimetres. Her raw measurements are 122 cm, 128 cm, 131 cm, 124 cm and 137 cm. Round each to the nearest 5 cm.
   Find the nearest multiple of 5. 122 → nearest multiples are 120 and 125; 122 is closer to 120, so 120 cm. 128 → between 125 and 130; closer to 130, so 130 cm. 131 → between 130 and 135; closer to 130, so 130 cm. 124 → between 120 and 125; closer to 125, so 125 cm. 137 → between 135 and 140; closer to 135, so 135 cm. Answers: 120, 130, 130, 125, 135 cm.
9. A class collected bivariate data on pets. They wrote down each student's favourite pet (dog, cat, or fish) and their gender. Here are the counts: Boys, dog 6, cat 2, fish 3. Girls, dog 4, cat 7, fish 1. How many students altogether, and which pet was chosen most often overall?
   Add all the counts: boys 6+2+3 = 11, girls 4+7+1 = 12. Total = 11 + 12 = 23 students. Now add each pet across both genders: dog 6+4 = 10, cat 2+7 = 9, fish 3+1 = 4. The most chosen pet overall is the dog, with 10 students.
10. Sione needs to measure the temperature of the school pool. His thermometer shows 19.8°C. The rule says round to the nearest whole degree. What temperature does he record, and why should everyone use the same rounding rule?
    The digit after the decimal is 8, which is 5 or more, so round up: 19.8°C rounds to 20°C. Everyone should use the same rounding rule so the recorded temperatures can be fairly compared and combined, instead of some people writing decimals and others whole numbers.
11. A class of 24 students recorded two things each: how they get to school (walk, bus, or car) and their gender. Boys: walk 5, bus 3, car 4. Girls: walk 6, bus 2, car 4. Make a statement comparing how boys and girls travel, using the data.
    First check totals: boys 5+3+4 = 12, girls 6+2+4 = 12, total 24 ✓. Compare each travel type: walking, girls 6 vs boys 5, so more girls walk. Bus, boys 3 vs girls 2, so more boys take the bus. Car, 4 boys and 4 girls, the same. A good statement: 'More girls walked to school than boys, more boys took the bus than girls, and an equal number of boys and girls came by car.' This uses both variables (travel method and gender) to make the comparison.
12. Kaia measures the length of the classroom in three ways. Rounded to the nearest metre she gets 8 m. Rounded to the nearest 10 centimetres she gets 780 cm. Rounded to the nearest centimetre she gets 784 cm. Explain why the three

answers are different but not wrong, and which measurement is the most precise.

All three describe the same real length of about 784 cm, but each uses a different rounding rule. Rounding to the nearest metre gives 8 m because 784 cm is closest to 800 cm (8 m). Rounding to the nearest 10 cm gives 780 cm because 784 is closer to 780 than 790. Rounding to the nearest centimetre keeps the most detail, 784 cm. None is wrong, they just answer to different levels of accuracy. The nearest centimetre (784 cm) is the most precise because it rounds to the smallest place value, keeping the most information.