Year 7 · Statistics: Averages, Spread and Data

Name: _____ Date: _____

Hi! This sheet helps you get confident finding the mean, median, mode and range, and thinking about the kinds of data we collect. Take your time and show your working.

Warm-up

1. Find the mean of 4, 6, 8, 10 and 12.

2. Find the median of 3, 7, 9, 2 and 5.

3. Find the mode of 2, 4, 4, 5, 7, 4 and 9.

4. Find the range of 12, 5, 18, 9 and 3.

Practice

5. Sort each of these variables into categorical, discrete numerical, or continuous numerical: (a) favourite ice cream flavour, (b) number of brothers and sisters, (c) height in centimetres, (d) eye colour.

6. In five netball games the Avondale team scored 8, 12, 10, 6 and 14 goals. Find the mean number of goals per game.

7. Six lunchtime temperatures (°C) were recorded: 18, 21, 19, 23, 20 and 22. Find the median temperature.

8. The shoe sizes of seven students are 5, 6, 5, 7, 8, 5 and 6. Find the mode and the range.

9. Mrs Patel's class wanted to answer the question 'Are our feet the same length?' They measured six feet (in mm): 220, 235, 228, 240, 225 and 232. Find the mean foot length and the range.

10. Six friends in Avondale save this much pocket money each week: $5, $8, $6, $10, $8 and $11. Find the mean, median and mode of the amounts saved.

Challenge

11. The mean of five rugby scores is 15. Four of the scores are 12, 18, 10 and 20. What is the fifth score?

12. The heights (cm) of seven students are 142, 150, 138, 155, 148, 160 and 145. (a) Find the median and the range. (b) A new student who is 165 cm tall joins the group. What is the new median?

Answer key (for parents and tutors)

1. Find the mean of 4, 6, 8, 10 and 12.
   Add them: 4 + 6 + 8 + 10 + 12 = 40. There are 5 numbers, so mean = 40 ÷ 5 = 8.

2. Find the median of 3, 7, 9, 2 and 5.
   Sort the numbers: 2, 3, 5, 7, 9. There are 5 values, so the middle one is the 3rd value. Median = 5.

3. Find the mode of 2, 4, 4, 5, 7, 4 and 9.
   The mode is the value that appears most often. 4 appears three times, more than any other. Mode = 4.

4. Find the range of 12, 5, 18, 9 and 3.
   Range = highest value − lowest value = 18 − 3 = 15.

5. Sort each of these variables into categorical, discrete numerical, or continuous numerical: (a) favourite ice cream flavour, (b) number of brothers and sisters, (c) height in centimetres, (d) eye colour.
   (a) Favourite ice cream flavour = categorical (it puts people in groups). (b) Number of brothers and sisters = discrete numerical (you count it). (c) Height in centimetres = continuous numerical (you measure it). (d) Eye colour = categorical (it puts people in groups).

6. In five netball games the Avondale team scored 8, 12, 10, 6 and 14 goals. Find the mean number of goals per game.
   Total goals = 8 + 12 + 10 + 6 + 14 = 50. There are 5 games, so mean = 50 ÷ 5 = 10 goals per game.

7. Six lunchtime temperatures (°C) were recorded: 18, 21, 19, 23, 20 and 22. Find the median temperature.
   Sort them: 18, 19, 20, 21, 22, 23. There are 6 values (an even amount), so the median is the mean of the two middle values (the 3rd and 4th): (20 + 21) ÷ 2 = 41 ÷ 2 = 20.5 °C.

8. The shoe sizes of seven students are 5, 6, 5, 7, 8, 5 and 6. Find the mode and the range.
   Mode: size 5 appears three times, more than any other, so mode = 5. Range = highest − lowest = 8 − 5 = 3.

9. Mrs Patel's class wanted to answer the question 'Are our feet the same length?' They measured six feet (in mm): 220, 235, 228, 240, 225 and 232. Find the mean foot length and the range.
   Total = 220 + 235 + 228 + 240 + 225 + 232 = 1380 mm. Mean = 1380 ÷ 6 = 230 mm. Range = 240 − 220 = 20 mm. Because the range is 20 mm, the feet are not all the same length.

10. Six friends in Avondale save this much pocket money each week: $5, $8, $6, $10, $8 and $11. Find the mean, median and mode of the amounts saved.
    Mean: total = 5 + 8 + 6 + 10 + 8 + 11 = $48, so mean = 48 ÷ 6 = $8. Median: sort them 5, 6, 8, 8, 10, 11; the two middle values (3rd and 4th) are 8 and 8, so median = (8 + 8) ÷ 2 = $8. Mode: $8 appears twice, more than any other, so mode = $8.

11. The mean of five rugby scores is 15. Four of the scores are 12, 18, 10 and 20. What is the fifth score?
    If the mean of 5 scores is 15, the total must be 15 × 5 = 75. The four known scores add to 12 + 18 + 10 + 20 = 60. So the fifth score = 75 − 60 = 15.

12. The heights (cm) of seven students are 142, 150, 138, 155, 148, 160 and 145. (a) Find the median and the range. (b) A new student who is 165 cm tall joins the group. What is the new median?
    (a) Sort the heights: 138, 142, 145, 148, 150, 155, 160. There are 7 values, so the median is the 4th value = 148 cm. Range = 160 − 138 = 22 cm. (b) With the new student there are 8 heights: 138, 142, 145, 148, 150, 155, 160, 165. The median is the mean of the 4th and 5th values: (148 + 150) ÷ 2 = 298 ÷ 2 = 149 cm.