GRADE 7

DATA HANDLING & GRAPHS

Complete Printable Worksheet Pack

A

B

C

D

E

6 Worksheets

Separate Answer Keys

Tables & Frequency

Bar & Line Graphs

Grouped Data & Scatter Plots

Interpretation & Challenges

A4 printable • International Grade 7 level

Worksheet 1: Reading Tables & Frequency Data

Use the data carefully. Show calculations and explain interpretations where asked.

A

B

C

D

E

1. The table shows books read by six students in one month: Asha 4, Ben 7, Cara 5, Dev 8, Ella 6, Finn 10. Who

read the most and how many books?

2. Using the same data, find the total number of books read.

3. Using the same data, find the mean number of books read.

4. A frequency table gives test scores: 4 occurs 2 times, 5 occurs 3 times, 6 occurs 4 times, 7 occurs 2 times

and 8 occurs 1 time. How many students took the test?

5. Using that frequency table, what score occurs most often?

6. Using that frequency table, find the total of all scores.

7. A shop records daily sales: Mon 24, Tue 31, Wed 28, Thu 35, Fri 32. On which day were sales highest?

8. Find the range of the five daily sales.

9. How many more sales were made on Thursday than Monday?

10. Explain why a frequency table can make a large data set easier to analyse.

Answer Key 1: Reading Tables & Frequency Data

Suggested answers. Equivalent correct reasoning is acceptable.

1. Finn; 10 books

2. 40 books

3. 40 ÷ 6 = 6.67 books (approximately).

4. 12 students

5. 6

6. 4×2+5×3+6×4+7×2+8×1 = 70

7. Thursday; 35

8. 35−24 = 11

9. 35−24 = 11

10. It groups repeated values and shows how often each value occurs, making patterns easier to see.

Worksheet 2: Bar Graphs & Double Bar Graphs

Use the data carefully. Show calculations and explain interpretations where asked.

A

B

C

D

E

1. A class survey records favourite sports: Football 12, Basketball 8, Tennis 6, Swimming 10, Athletics 4. Which

sport is most popular?

2. What is the total number of students surveyed?

3. How many more students chose Football than Athletics?

4. A double-bar survey records boys/girls choosing clubs: Art 6/9, Music 8/7, Science 10/6, Drama 5/8. Which

club has the largest total?

5. How many students chose Science altogether?

6. Which club has the greatest difference between boys and girls?

7. A bar graph uses a scale of 1 square = 5 students. A bar is 7 squares high. What value does it represent?

8. A bar representing 42 students is drawn on a graph where 1 square = 6 students. How many squares high

should it be?

9. Why is it important to label both axes of a bar graph?

10. A graph's vertical axis starts at 20 instead of 0. What could this do to the visual impression of differences?

Explain.

Answer Key 2: Bar Graphs & Double Bar Graphs

Suggested answers. Equivalent correct reasoning is acceptable.

1. Football

2. 40 students

3. 8 students

4. Science: 16 students

5. 16

6. Art; difference 3

7. 35 students

8. 7 squares

9. Labels identify what each axis represents and the units being measured.

10. It can make differences look larger than they really are, so the scale should be clear and appropriate.

Worksheet 3: Line Graphs & Change Over Time

Use the data carefully. Show calculations and explain interpretations where asked.

1. A plant's height is recorded: Week 1 8 cm, Week 2 11 cm, Week 3 15 cm, Week 4 18 cm, Week 5 24 cm.

During which week-to-week interval was growth greatest?

2. What was the total increase from Week 1 to Week 5?

3. Find the average weekly increase from Week 1 to Week 5.

4. A temperature line graph shows 18°C at 8am, 21°C at 10am, 25°C at noon, 23°C at 2pm and 19°C at 4pm. At

what time was temperature highest?

5. What was the greatest temperature change between consecutive readings?

6. A cyclist's distance from home is 4 km at 9am, 12 km at 10am, 19 km at 11am and 25 km at noon. What total

distance from the 9am position was covered?

7. What does a steep upward section of a line graph usually indicate?

8. A line graph stays horizontal between 2pm and 3pm. What does this suggest?

9. A data set rises from 30 to 45, then falls to 20. Find the total change from the start to the end.

10. Why should the intervals on the axes of a line graph be equally spaced?

Answer Key 3: Line Graphs & Change Over Time

Suggested answers. Equivalent correct reasoning is acceptable.

1. Week 4 to Week 5; increase 6 cm

2. 16 cm

3. 16÷4 = 4 cm/week

4. Noon; 25°C

5. 4°C (from 21 to 25)

6. 25−4 = 21 km

7. A rapid increase in the measured quantity.

8. The quantity stayed constant during that interval.

9. Final minus start = 20−30 = −10, so a decrease of 10.

10. Equal spacing represents equal numerical intervals and prevents a misleading graph.

Worksheet 4: Pictographs, Histograms & Grouped Data

Use the data carefully. Show calculations and explain interpretations where asked.

1. A pictograph uses one symbol = 4 visitors. Monday has 6 symbols, Tuesday 8, Wednesday 5 and Thursday

7. How many visitors came on Tuesday?

2. Find the total visitors from Monday to Thursday.

3. How many more visitors came on Tuesday than Wednesday?

4. A grouped table records ages: 10–12: 5 students; 13–15: 9 students; 16–18: 6 students. Which group is most

frequent?

5. How many students are represented altogether?

6. A histogram class interval has frequency 12. What does the frequency represent?

7. In a grouped table, 20 students are in the interval 30–39 and 14 are in 40–49. How many students are in

these two groups?

8. A pictograph shows 3½ symbols, with each symbol representing 10 cars. How many cars does this

represent?

9. Why are histograms suitable for continuous numerical data?

10. Give one difference between a bar graph and a histogram.

Answer Key 4: Pictographs, Histograms & Grouped Data

Suggested answers. Equivalent correct reasoning is acceptable.

1. 8×4 = 32 visitors

2. (6+8+5+7)×4 = 104 visitors

3. 3×4 = 12 visitors

4. 13–15

5. 20 students

6. It tells how many observations fall in that class interval.

7. 34 students

8. 35 cars

9. They show how numerical values are distributed across continuous intervals.

10. Bars in a histogram represent continuous intervals and normally touch; bar-graph categories are separate and bars

normally have gaps.

Worksheet 5: Scatter Plots, Trends & Interpretation

Use the data carefully. Show calculations and explain interpretations where asked.

1. A scatter plot compares hours studied and test scores. If points generally rise from left to right, what type of

association is suggested?

2. If points generally fall from left to right, what type of association is suggested?

3. Data pairs are (1,52), (2,57), (3,61), (4,67), (5,72). Describe the trend.

4. Using the same data, estimate the score for 6 hours if the trend continues at roughly the same rate.

5. Data pairs are outside temperature and hot-drink sales: (10,80), (12,72), (15,60), (18,48), (20,40). Describe

the association.

6. Does a scatter plot showing association prove that one variable causes the other? Explain.

7. A scatter plot has points widely spread around an upward trend. Is the association strong or weak? Explain.

8. A point lies far away from the main cluster of points. What is this point often called?

9. Why can a line of best fit be useful in a scatter plot?

10. A scatter plot compares shoe size and reading score in a class and shows no clear pattern. What conclusion

is reasonable?

Answer Key 5: Scatter Plots, Trends & Interpretation

Suggested answers. Equivalent correct reasoning is acceptable.

1. Positive association
2. Negative association
3. Positive, roughly linear trend.
4. About 77, assuming an increase of roughly 5 points per hour.
5. Negative association: hotter weather is associated with fewer hot-drink sales.
6. No. Association alone does not establish causation; other factors may be involved.
7. Weak positive association because the points are widely scattered.
8. An outlier
9. It summarises the overall trend and can help estimate values.
10. There is no clear association between shoe size and reading score in this data.

Worksheet 6: Data Handling & Graphs Challenge

Use the data carefully. Show calculations and explain interpretations where asked.

1. A data set is 4, 6, 7, 7, 8, 10, 12, 14. Find the mean, median, mode and range.

2. A frequency table has values 2, 3, 4, 5 with frequencies 2, 4, 3, 1. Find the total frequency and mean.

3. A class records daily screen time: 1.2, 1.5, 0.8, 2.0, 1.5, 1.0, 2.0 hours. Find the median and mode.

4. A graph shows sales of 120 units in January, 150 in February, 135 in March and 195 in April. Find the

percentage increase from January to April.

5. A double bar graph shows Group A scores 18, 22, 25 and 20; Group B scores 21, 19, 27 and 24. In which

category is the combined score highest?

6. A line graph rises from 45 to 60, falls to 52, then rises to 68. Find the net increase from the start and the total

amount of movement up/down.

7. A survey of 80 students shows 35% prefer cycling, 25% walking, 20% bus and the rest car. How many prefer

each method?

8. A scatter plot has 12 points, 9 of which lie close to an upward trend. Describe the likely strength and direction

of association.

9. A misleading graph uses unequal intervals on the vertical axis. Explain why this can make the data

interpretation unreliable.

10. A data set has mean 18 for 5 values. Four values are 12, 16, 21 and 25. Find the fifth value and then find the

range.

Answer Key 6: Data Handling & Graphs Challenge

Suggested answers. Equivalent correct reasoning is acceptable.

1. Mean 8.5; median 7.5; mode 7; range 10.

2. Total frequency 10; weighted total $2\times2+3\times4+4\times3+5\times1=33$; mean 3.3.

3. Sorted: 0.8,1.0,1.2,1.5,1.5,2.0,2.0; median 1.5 h; modes 1.5 and 2.0 h.

4. Increase 75; $75/120\times100 = 62.5\%$.

5. Category 3: $25+27=52$, the highest combined score.

6. Net increase 23; total movement = 15+8+16 = 39 units.

7. Cycling 28, walking 20, bus 16, car 16.

8. Likely a strong positive association, because most points follow an upward trend.

9. Unequal intervals distort visual distances and can exaggerate or hide changes.

10. Total = $18\times5=90$; fifth value = $90-(12+16+21+25)=16$; range = $25-12=13$.