

Reading Pictographs and Bar Graphs

Unit: Data Handling - Student Practice Worksheet

Overview: The class fruit survey showed 4 and a half apple pictures next to 'Tuesday.' Kabir asked the obvious question: how do you eat half an apple picture? The answer was hiding in a tiny line of text at the bottom of the chart, which everyone had skipped.

Practice Questions (30 Total)

Section A - Easy

Q1. Three whole pictures, key 2 students each. Total?



key = 2 each

- ☐ A. 3
- ☐ B. 6
- ☐ C. 5
- ☐ D. 2

Q2. In a pictograph, what does the key tell you?

- ☐ A. How many items one picture represents
- ☐ B. The colour of the chart
- ☐ C. The title of the chart
- ☐ D. How many pictures to draw

Q3. If the key is '■ = 4 points' and there are 2 whole stars, how many points is that?

- ☐ A. 8
- ☐ B. 4
- ☐ C. 6
- ☐ D. 2

Q4. Half a picture when key is 2. How many students?



half picture, key 2

- ☐ A. 0.5
- ☐ B. 2
- ☐ C. 4
- ☐ D. 1

Q5. A bar graph shows counts using:

- ☐ A. Repeated pictures
- ☐ B. Colours only
- ☐ C. Bar height against a scale
- ☐ D. Random dots

Q6. Does a bar graph need a key like a pictograph does?

- ☐ A. Yes, always
- ☐ B. Only for large numbers
- ☐ C. Only for small numbers
- ☐ D. No, the bar height is the count

Q7. One bar against a scale. What gives the count?



height vs scale

- ☐ A. The bar's height against the scale
- ☐ B. The bar's colour
- ☐ C. The bar's width
- ☐ D. The bar's position on the page

Q8. What should you ALWAYS check before reading a pictograph's count?

- ☐ A. The chart's colour
- ☐ B. The title only
- ☐ C. The key
- ☐ D. The paper size

Q9. Which chart type is generally faster to read at a glance?

- ☐ A. A bar graph
- ☐ B. A pictograph
- ☐ C. Neither is faster
- ☐ D. Both are equally slow

Q10. What is a 'category' in a bar graph or pictograph?

- ☐ A. The chart's title
- ☐ B. One group of data, like a fruit
- ☐ C. The paper the chart is drawn on
- ☐ D. The key's value

Section B - Medium

Q11. Four wholes and a half, key 2. Total students?



- ☐ A. 9
- ☐ B. 8
- ☐ C. 4.5
- ☐ D. 10

Q12. Why might a chart maker use a pictograph instead of a bar graph?

- ☐ A. Pictographs are always more accurate
- ☐ B. Bar graphs cannot show fruit data
- ☐ C. Pictographs never need a key
- ☐ D. Pictures give a quicker, friendlier feel to read

Q13. The bar graph showed mangoes at 12 and bananas at 7. How many more students chose mangoes?

- ☐ A. 19
- ☐ B. 5
- ☐ C. 12

☐ D. 7

Q14. Three wholes and a half, key 5. Total books?



☐ A. 15

☐ B. 20

☐ C. 17.5

☐ D. 3.5

Q15. Kabir misread a pictograph by assuming each picture equals exactly 1 unit, ignoring the key. What went wrong?

- ☐ A. Nothing, that assumption is always safe
- ☐ B. Pictographs never have a key
- ☐ C. His count is wrong unless the key really is 1
- ☐ D. The chart itself was drawn incorrectly

Q16. A pictograph's key is '■ = 3 goals.' If a team scored 21 goals, how many whole ball pictures are drawn?

☐ A. 3

☐ B. 7

☐ C. 21

☐ D. 63

Q17. Three bars: grapes 5, oranges 9, apples 9. Tie?



- ☐ A. Oranges and apples
- ☐ B. Grapes and oranges
- ☐ C. Grapes and apples
- ☐ D. None are tied

Q18. Both a pictograph and bar graph of the same survey are shown. Should their totals for each category match?

- ☐ A. Yes, since both show the same real data
- ☐ B. No, they always differ
- ☐ C. Only if drawn by the same person
- ☐ D. Only for even numbers

Q19. A bar graph's scale goes up in steps of 5 (0, 5, 10, 15...). A bar reaches exactly halfway between 10 and 15. What value does it represent?

- ☐ A. 10
- ☐ B. 15
- ☐ C. 5
- ☐ D. 12.5

Q20. Anaya wants to know exactly how many more oranges than grapes were chosen, down to the exact number. Which chart type is more directly suited for this?

- ☐ A. A pictograph, since pictures are always precise
- ☐ B. A bar graph, since heights read as exact numbers
- ☐ C. Neither can answer this
- ☐ D. Only a pie chart can

Section C - Challenge

Q21. Five wholes plus a quarter, key 4 cars. Total?



- ☐ A. 21
- ☐ B. 20
- ☐ C. 20.25
- ☐ D. 24

Q22. A bar graph's y-axis mistakenly starts at 5 instead of 0. What is the risk of reading it this way?

- ☐ A. It makes differences between bars look artificially larger than they really are
- ☐ B. It has no effect on how the chart reads

- ☐ C. It makes all bars look identical
- ☐ D. It only affects pictographs, not bar graphs

Q23. A bar graph shows 5 fruit categories totalling 50 students surveyed. If 4 categories total 38 students, how many chose the 5th fruit?

- ☐ A. 38
- ☐ B. 12
- ☐ C. 50
- ☐ D. 88

Q24. Two wholes and a third, key 6 oranges. Total?



- ☐ A. 12
- ☐ B. 18
- ☐ C. 14
- ☐ D. 13

Q25. Two pictographs of the same data use different keys: one says '■ = 2 students,' the other '■ = 5 students.' Will they show the same NUMBER of apple pictures for 20 students?

- ☐ A. Yes, always the same number of pictures
- ☐ B. No — both need exactly 20 pictures
- ☐ C. The key never changes picture count
- ☐ D. No — the first needs 10 pictures, the second needs 4

Q26. A survey pictograph shows total votes for 4 pets: dog 15, cat 12, fish 6, bird 9. What fraction of the total chose dogs?

- ☐ A. 15/15, all of them
- ☐ B. 15/42, roughly a third
- ☐ C. 1/4 exactly
- ☐ D. 1/2 exactly

Q27. Key 3, class of 10, whole pictures only. Closest?



9, but need 10

- ☐ A. Exactly 10 pictures, no issue at all
- ☐ B. 3 or 4 pictures, but neither is exact
- ☐ C. The chart simply cannot be drawn
- ☐ D. 10 is not a real number of students

Q28. Ms. Rao said the 'real power' of these charts is comparing categories, not reading one number alone. Give an example of a comparison question these charts answer well.

- ☐ A. How much MORE popular is one category than another?
- ☐ B. How many total pixels does the chart image have?
- ☐ C. What font was used to label the chart?
- ☐ D. What colour is the chart's background?

Q29. Why can a bar graph represent a value the key of a pictograph literally cannot show as a whole picture (like 13, with a key of 4 per picture)?

- ☐ A. Bar graphs cannot represent 13 either
- ☐ B. Bar graphs always round to the nearest key value
- ☐ C. Bar height can land at any point on the scale
- ☐ D. Because 13 is not a real number

Q30. A pictograph's key changes partway through printing, from '= 2' to '= 3', without updating the chart. What problem does this cause?

- ☐ A. No problem, the chart is still accurate
- ☐ B. It only affects the chart's colours
- ☐ C. It makes the chart faster to read
- ☐ D. Every count read using the wrong key value will be inaccurate

Answer Key

Q1: (B) (b) $6. 3 \times 2 = 6$.

Q2: (A) (a) How many items one picture represents.

Q3: (A) (a) $8. 2 \times 4 = 8$.

Q4: (D) (d) 1. Half of 2 is 1.

Q5: (C) (c) Bar height against a scale.

Q6: (D) (d) No — the bar's height read against the scale already gives the exact count.

Q7: (A) (a) The bar's height against the scale.

Q8: (C) (c) The key — it tells you what each picture is worth.

Q9: (B) (b) A pictograph — its pictures give a quick visual sense, as long as the key is remembered.

Q10: (B) (b) One group or type of data being shown, like a single fruit.

Q11: (A) (a) $9. 4 \times 2 = 8$, plus half of 2 (1), equals 9.

Q12: (D) (d) Pictographs give a quicker, friendlier visual impression, especially for younger readers, as long as the key is used correctly.

Q13: (B) (b) $5. 12 - 7 = 5$.

Q14: (C) (c) $17.5. 3 \times 5 = 15$, plus half of 5 (2.5), equals 17.5.

Q15: (C) (c) He may have badly undercounted or overcounted — the key can set any value per picture, not always 1.

Q16: (B) (b) $7. 21 \div 3 = 7$ whole pictures.

Q17: (A) (a) Oranges and apples — both at 9, the highest count.

Q18: (A) (a) Yes — both charts display the same real data, only the visual method differs.

Q19: (D) (d) 12.5 — the midpoint between the two marked values.

Q20: (B) (b) A bar graph, since its bar heights against the scale give exact numbers directly.

Q21: (A) (a) $21. 5 \times 4 = 20$, plus a quarter of 4 (1), equals 21.

Q22: (A) (a) It makes differences between bars look artificially larger than they really are, since the visual height no longer starts from a true zero.

Q23: (B) (b) $12. 50 - 38 = 12$.

Q24: (C) (c) $14. 2 \times 6 = 12$, plus a third of 6 (2), equals 14.

Q25: (D) (d) No — with key 2, 20 students needs 10 pictures; with key 5, it needs only 4 pictures.

Q26: (B) (b) $15/42$, roughly a third — total is $15+12+6+9=42$, and $15/42$ simplifies close to $1/3$.

Q27: (B) (b) 3 pictures (9) or 4 pictures (12) — neither is exact, revealing that whole-picture-only pictographs can't always represent every possible count precisely.

Q28: (A) (a) How much MORE popular is one category than another — that's the comparison question these charts are built to answer.

Q29: (C) (c) Because a bar's height can land at any point along the continuous numbered scale, unlike a pictograph's picture-by-picture counting.

Q30: (D) (d) Every count read using the wrong (outdated) key value will be inaccurate — the key must always match what the pictures were actually drawn to represent.

You've got this! Keep learning and shining! - Ruchi Math Coaching