Worksheet - Bar charts and time graphs

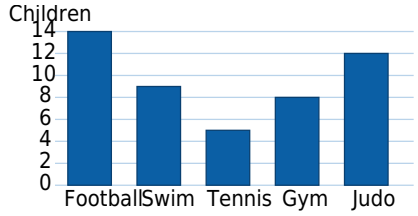
Year: Year 4 · 20

Show your working.

Question 1

Question 1 – Reading a bar chart *(Section A · Practice)*

Year 4 voted for their favourite sport. The bar chart shows the results.

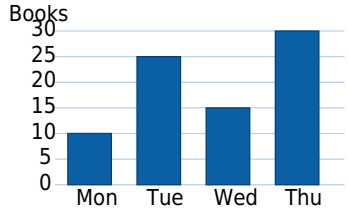


a. How many children chose swimming?
b. Which sport is the most popular and which is the least popular?
c. How many more children chose football than tennis?
d. How many children voted altogether?

Question 2

Question 2 – A scale of 5 *(Section A · Practice)*

The bar chart shows how many books were borrowed from the school library on four days. Look at the scale carefully: each line is worth 5 books.



a. How many books were borrowed on Tuesday?
b. On which day were the most books borrowed? How many?
c. How many more books were borrowed on Thursday than on Monday?
d. How many books were borrowed in the four days altogether?

Question 3

Question 3 – Pictogram *(Section A · Practice)*

A pictogram shows the number of ice creams sold at a kiosk on four days. Each symbol ● stands for 6 ice creams and a half symbol ◐ stands for 3 ice creams.

Item	Symbols
Friday	●●●
Saturday	●●●●●
Sunday	●●●●
Monday	●◐

a. How many ice creams were sold on Saturday?
b. How many ice creams were sold on Monday?
c. On which day were exactly 24 ice creams sold?
d. How many ice creams were sold in total?

Question 4

Question 4 – Tally chart *(Section A · Practice)*

The tally chart shows the favourite fruits of a class. Copy and complete it.

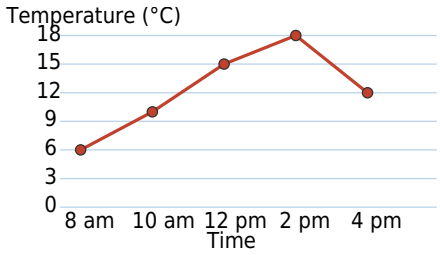
Fruit	Tally	Frequency
Apple	|||| ||||	?
Banana	|||| |	?
Orange	|||| |||| |||	?
Grapes	||	?

a. Write the frequency of each fruit.
b. Which fruit is the most popular?
c. How many children took part in the survey?

Question 5

Question 5 – Reading a time graph *(Section A · Practice)*

The time graph shows the temperature in a garden through the day.



a. What is the temperature at 12 pm?
b. At what time is it warmest? What is the temperature then?
c. By how much does the temperature rise from 8 am to 2 pm?
d. By how much does the temperature fall from 2 pm to 4 pm?

Question 6

Question 6 – Making a bar chart *(Section A · Practice)*

Isla asks 30 children how they travel to school. The results are in the table.

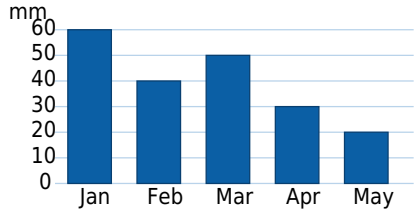
Way to school	Number of children
Walk	12
Car	8
Bus	6
Cycle	4

a. Which scale would you choose for the vertical axis? Explain.
b. How tall is each bar if each square is worth 2 children?
c. Check that the total is 30.
d. Draw the chart: describe what you must label.

Question 7

Question 7 – Rainfall in the town *(Section B · Real-life practice)*

The bar chart shows the rainfall in millimetres in a town in the first five months of the year.

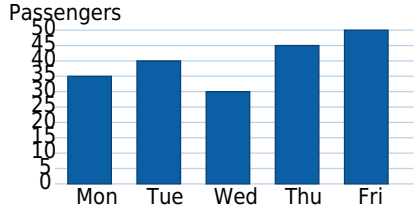


a. Which month was the wettest and which the driest?
b. How much more rain fell in January than in May?
c. How much rain fell from January to March?
d. The average per month is the total divided by 5. Work out the average rainfall for the five months.

Question 8

Question 8 – Bus passengers *(Section B · Real-life practice)*

A bus company counts the passengers on the Number 5 bus every morning. The bar chart shows the numbers (a scale of 5).



a. How many passengers were on the bus on Wednesday?
b. On which day were there the most passengers? How many more than on Monday?
c. How many passengers travelled from Monday to Friday?
d. Each ticket costs £2. How much money did the bus company take on Friday?

Question 9

Question 9 – School lunches *(Section B · Real-life practice)*

The school kitchen records how many children choose each meal on Monday. Each symbol ● stands for 10 children.

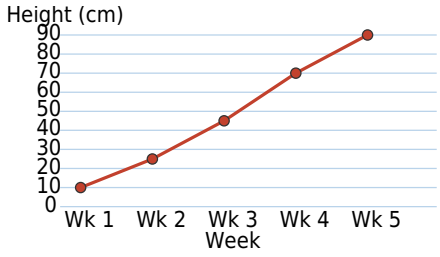
Item	Symbols
Pasta	●●●●
Pizza	●●●●●
Salad	●●
Fish	●●●

a. How many children chose pizza?
b. How many children chose salad?
c. Which meal was chosen by 30 children?
d. How many children had a school lunch altogether?

Question 10

Question 10 – Growing a sunflower *(Section B · Real-life practice)*

Tom measures his sunflower every week. The time graph shows its height in centimetres.



a. What is the height after 3 weeks?
b. How much does the sunflower grow between week 2 and week 4?
c. In which week does it grow the most? How much?
d. Tom says the sunflower will be 110 cm in week 6 if it grows like the last week. Do you agree?

Question 11

Question 11 – Ice cream sales *(Section B · Real-life practice)*

A kiosk keeps a table of the number of ice creams sold and the temperature each day.

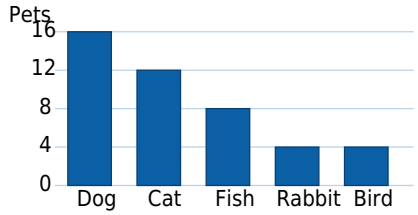
Day	Temperature (°C)	Ice creams sold
Mon	12	30
Tue	15	50
Wed	18	70
Thu	22	95
Fri	20	85

a. On which day were the most ice creams sold? What was the temperature?
b. How many more ice creams were sold on Thursday than on Monday?
c. How many ice creams were sold on the five days?
d. What do you notice about the number of ice creams when the temperature rises?

Question 12

Question 12 – Pets at the school *(Section B · Real-life practice)*

Ali asks the children in Year 4 which pet they have at home. The results are in a bar chart with a scale of 4.

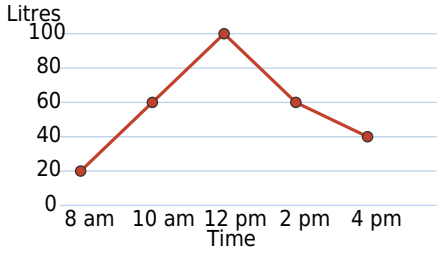


a. How many children have a dog?
b. How many more children have a cat than a rabbit?
c. Two categories have the same number. Which are they?
d. How many children are there altogether (each child has one pet)? Is a quarter of them dog owners?

Question 13

Question 13 – Water in the tank *(Section B · Real-life practice)*

A water tank is filled and then emptied during the day. The time graph shows the amount of water in litres.



a. How much water is in the tank at 10 am?
b. When is the tank fullest?
c. How much water leaves the tank between 12 pm and 4 pm?
d. At 4 pm the tank is refilled at 20 litres every hour. How long to reach 100 litres?

Question 14

Question 14 – The cycle club *(Section B · Real-life practice)*

The cycle club records how many kilometres each member rides on Saturday. The table shows the results.

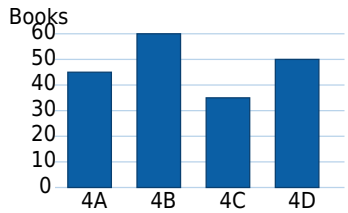
Member	Distance (km)
Amy	25
Ben	15
Cara	40
Dan	30
Eve	10

a. Which scale would you use for a bar chart? Explain.
b. How many bars would you draw? How many squares tall is Cara's bar for a scale of 5 km per square?
c. How many more kilometres did Cara ride than Eve?
d. What is the total distance ridden by the club?

Question 15

Question 15 – School survey *(Section C · Problem solving)*

Mrs Lee surveys the 4 Year 4 classes about the number of books each child read last month. The bar chart shows the total for each class.



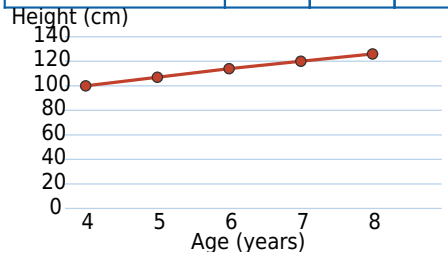
a. Which class read the most books? How many?
b. How many books did classes 4A and 4C read together?
c. What is the total for all four classes?
d. Class 4B has 24 children. How many books on average did each child read?
e. The school target is 200 books. By how much did they pass or miss the target?

Question 16

Question 16 – Heights of children *(Section C · Problem solving)*

The table shows the height of a boy called Sam every year from his 4th to his 8th birthday.

Age (years)	4	5	6	7	8
Height (cm)	100	107	114	120	126



a. How much did Sam grow between his 4th and 5th birthdays?
b. In which year did he grow the most? How much?
c. How much did he grow from age 4 to age 8?
d. Sam’s sister Mia is 130 cm tall at age 8. How much taller is she than Sam at 8?
e. Is the graph steeper between ages 4 and 5 or between ages 7 and 8? Explain.

Question 17

Question 17 – Weekend visitors *(Section C · Problem solving)*

A museum records visitors on Saturday and Sunday. The table shows each time of day.

Time	Saturday	Sunday
Morning	120	90
Lunchtime	200	150
Afternoon	180	160
Evening	60	40

a. How many visitors were there in total on Saturday?
b. How many visitors on Sunday?
c. Which part of the day had the most visitors on both days?
d. The museum wants a total of 1 000 visitors for the weekend. Did it reach this target?
e. Which scale would you choose for a bar chart of the Saturday numbers (biggest 200)? Explain.

Question 18

Question 18 – The football team *(Section C · Problem solving)*

The table shows the number of goals scored by a school football team in the first 10

matches.

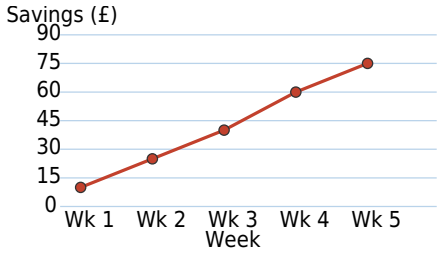
Goals	0	1	2	3	4
Matches	1	3	4	1	1

a. How many matches ended with exactly 2 goals?
b. In how many matches did the team score at least 2 goals?
c. Work out the total number of goals scored.
d. Draw a bar chart: how tall would the bar for 1 goal be on a scale of 1 per square?
e. Is it true that the team scored more than 2 goals on average? Explain.

Question 19

Question 19 – Saving for a bike *(Section C · Problem solving)*

Ella saves money each week for a bike that costs £90. The time graph shows the total amount she has saved at the end of each week.



a. How much has she saved at the end of week 3?
b. How much does she save in week 4 alone?
c. In which week does she save the most? How much?
d. How much more does she need to buy the bike after week 5?
e. If she saves £15 each week from now on, in which week will she have enough money?

Question 20

Question 20 – Challenge: missing bars *(Section D · Challenge)*

A bar chart shows the number of pupils in four clubs. The total number of pupils is 60. Three of the bars are known: chess 12, art 18 and drama 15. The bar for sport is missing. The scale is 3 pupils per square.

a. How many pupils are in the sport club?
b. How many squares tall is each of the four bars?
c. The school adds a new club, music, with 9 pupils. Now each pupil belongs to just one club. How many pupils are there in total?
d. What fraction of all pupils (with music added) are in the art club? Write it as a fraction in its simplest form.