









Name: _____

PDM3-4 Introduction to Pictographs

Gr. 3 Math
June 1-5


























A pictograph uses symbols to show data.
 On this pictograph, the symbol  means 1 student.
 2 students eat lunch at home.
 5 students eat lunch at school.


Lunch Location

| | |
|-----------|---|
| At home |   |
| At school |      |

1. Use the pictograph to answer the question.

Number of Rainy Days

| | | | | | | | | | |
|-----------|---|---|---|---|---|---|---|---|--|
| April |  |  |  |  |  |  |  |  |  |
| May |  |  |  |  |  | | | | |
| June |  |  |  |  | | | | | |
| July |  |  |  | | | | | | |
| August |  |  |  |  | | | | | |
| September | | | | | | | | | |

 = 1 day

a) How many rainy days were there in each month?

June _____ May _____ August _____

b) Which month had only 3 rainy days? _____

c) Which months had the same number of rainy days? _____

d) How many more rainy days were there in April than in August? _____

e) June has 30 days. How many days were not rainy?

Write the subtraction equation. _____


f) September had 7 rainy days. Show this on the pictograph.



















g) Which month had the most rainy days? _____

h) Which month had the fewest rainy days? _____

2. Use the pictograph to answer the questions.


a) Lunch for Jay's Class


















 = 1 student

| | | | | | | | | | | | |
|-----------|---|---|---|---|---|--|---|---|---|---|---|
| At school |  |  |  |  |  |  |  | | | | |
| At home |  |  |  |  |  |  |  |  |  |  |  |

Do more students from Jay's class eat lunch at home or at school? _____ How many more? _____

b) Lunch for Kate's Class


 = 1 student

| | | | | | | | | | | | |
|-----------|---|---|---|---|---|--|---|---|---|---|---|
| At school |  |  | |  | |  |  | |  |  |  |
| At home |  |  |  |  |  | |  |  |  |  | |

Kate thinks more students eat lunch at school. Is she correct? _____

c) Fix the pictograph in part b) so that it is easier to read.

Lunch for Kate's Class


 = 1 student

| | | | | | | | | | | | |
|-----------|--|--|--|--|--|--|--|--|--|--|--|
| At school | | | | | | | | | | | |
| At home | | | | | | | | | | | |

Do more students from Kate's class eat lunch at home or at school? _____ How many more? _____

d) Use the data from the pictographs in parts a) and c) to make a new graph.

Lunch at School

 = 1 student

| | | | | | | | | | | | |
|--------------|--|--|--|--|--|--|--|--|--|--|--|
| Jay's class | | | | | | | | | | | |
| Kate's class | | | | | | | | | | | |

Do more students from Jay's class or Kate's class eat at school? _____ How many more? _____

3. Rob asked his friends to vote for their favourite sport.

a) Draw a circle for each student vote.

| Favourite Sport | Number of Students |
|-----------------|--------------------|
| Baseball | 5 |
| Ice Hockey | 6 |
| Volleyball | 3 |
| Soccer | 4 |

Students' Favourite Sports ○ = 1 student

| | | | | | | |
|------------|---|---|---|---|---|--|
| Baseball | ○ | ○ | ○ | ○ | ○ | |
| Ice Hockey | | | | | | |
| Volleyball | | | | | | |
| Soccer | | | | | | |

b) Which sport is the most popular? _____

How can you see that from the pictograph? _____

c) How many more students voted for baseball than for volleyball? _____

d) How many students in total voted for ball games? _____

BONUS ► How many more students voted for ball games than for ice hockey? _____

4. Some students from Jane's class go to after-school programs.

a) Draw circles to show the data.

6 students go to art lessons.

3 more students go to soccer than to art lessons.

2 fewer students go to music lessons than to art lessons.

After-School Programs ○ = 1 student

| | | | | | | | | | | |
|------------|--|--|--|--|--|--|--|--|--|--|
| Art | | | | | | | | | | |
| Soccer | | | | | | | | | | |
| Music | | | | | | | | | | |
| No program | | | | | | | | | | |




b) There are 23 students in Jane's class. How many do not go to any after-school programs? Show this on the pictograph.


PDM3-5 Pictographs

A scale shows what the symbol means on a pictograph.







10 students eat lunch at home and 20 students eat lunch at school. Both pictographs show the same data, but they use different scales.


Lunch Location

| | |
|-----------|---|
| At home |  |
| At school |   |

 = 10 students


Lunch Location


| | |
|-----------|---|
| At home |   |
| At school |     |


 = 5 students




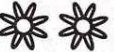
1. Look at the scale and multiply to find what each group of symbols means.


a)  = 5 people


 = 15 people


 = _____ people

b)  = 2 flowers

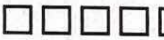
 = _____ flowers

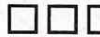
 = _____ flowers

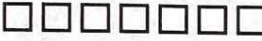
 = _____ flowers



c)  = 3 boxes

 = _____ boxes


 = _____ boxes


 = _____ boxes

 = _____ boxes


BONUS ▶ If  = 20 people, how many people is  ? _____

2. Look at the scale and draw symbols to show each number.

a)  = 4 boxes

12 boxes = 

8 boxes = _____













b)  = 5 boxes

15 boxes = _____

30 boxes = _____

3. a) Use the pictograph to fill in the table.

Flowers in Evan's Garden  = 2 flowers

| | |
|-----------|---|
| Roses |     |
| Pansies |   |
| Marigolds |       |

| Type of Flower | Number of Flowers |
|----------------|-------------------|
| Roses | |
| Pansies | |
| Marigolds | |


b) Use the data in part a) to draw a pictograph with the new scale.



Flowers in Evan's Garden  = 4 flowers



| | | | | | |
|-----------|--|--|--|--|--|
| Roses | | | | | |
| Pansies | | | | | |
| Marigolds | | | | | |









c) How many more marigolds than pansies does Evan have? _____

d) How many flowers does Evan have in total? _____

Half a symbol means half the number. Example: If  = 4, then  = $4 \div 2 = 2$.






4. The first row shows what  means. What does  mean? Fill in the table.

| | | | | | | | |
|---|----|---|---|----|----|----|-----|
|  | 10 | 2 | 6 | 20 | 14 | 12 | 200 |
|  | 5 | | | | | | |












If  = 10, then    = $3 \times 10 = 30$, and     = $30 + 5 = 35$.

5. The first row shows what one symbol means. What does each group of symbols mean?

a)

| | | | |
|---|----|---|----|
|  | 6 | 2 | 10 |
|   | 12 | | |
|  | 3 | | |
|    | 15 | | |

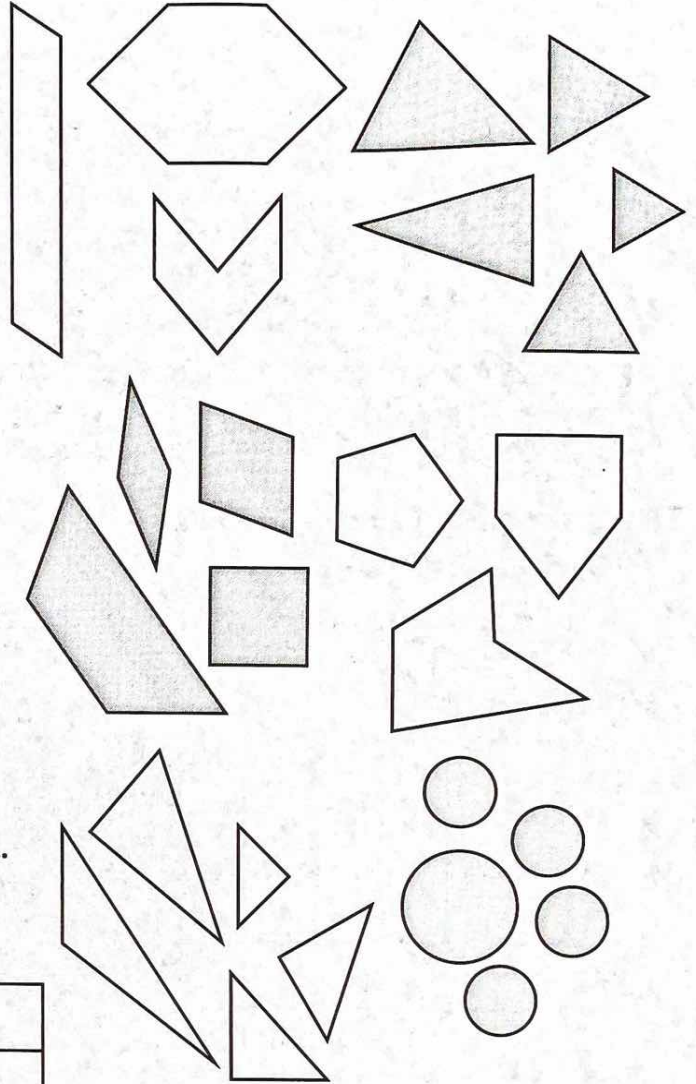
b)

| | | | |
|---|---|---|----|
|  | 2 | 4 | 10 |
|     | | | |
|  | | | |
|      | | | |

PDM3-6 Creating Pictographs

- I. a) There are 25 shapes in the picture. Count the number of each shape.

| Shape | Number of Shapes |
|---------------|------------------|
| Triangle | |
| Quadrilateral | |
| Pentagon | |
| Hexagon | |
| Circle | |



- b) Choose a symbol for your pictograph. Make sure it is easy to draw half a symbol.

- c) Draw a pictograph using your symbol. Remember to fill in the scale.

Shapes in the Picture

| | | | | | | | |
|---------------|--|--|--|--|--|--|--|
| Triangle | | | | | | | |
| Quadrilateral | | | | | | | |
| Pentagon | | | | | | | |
| Hexagon | | | | | | | |
| Circle | | | | | | | |


_____ = 2 shapes


- d) What is the most common shape in the picture? _____
 What is the least common shape in the picture? _____
- e) Polygons have straight sides.
 How many polygons are in the picture? _____
- f) How many more polygons than circles are in the picture? _____

2. The first line shows the data. Circle the best scale for the data.


a) 12, 6, 8


 = 2


 = 5

 = 10


b) 30, 20, 40


 = 2


 = 3

 = 10


c) 9, 12, 6


 = 3


 = 5

 = 10

d) 25, 10, 35

 = 2

 = 3


 = 5

REMINDER ▶ The **mode** is the most common data value.
In the set 3, 3, 4, 4, 4, 5, 5, 6, the mode is 4.

3. Lily counted the students in each grade at camp.


Draw a pictograph for the given scale.

| Grade | 1 | 2 | 3 | 4 | 5 |
|--------------------|----|----|----|---|----|
| Number of Students | 15 | 10 | 20 | 5 | 10 |

a)  = 5 students

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 1 | 2 | 3 | 4 | 5 |

Grade

b)  = 10 students

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 1 | 2 | 3 | 4 | 5 |

Grade

c) What is the mode? How can you find the mode from a pictograph?


4. Use the pictograph to answer the questions.


a) How many more students visited Vancouver than Ottawa? _____

b) Fewer students visited Calgary than Ottawa. How many fewer? _____

c) 15 more students visited Toronto than Winnipeg. Show this on the pictograph.

Cities Visited by Students

| | |
|---------------|---|
| Calgary, AB |  |
| Toronto, ON |     |
| Ottawa, ON |    |
| Vancouver, BC |     |
| Winnipeg, MB | |

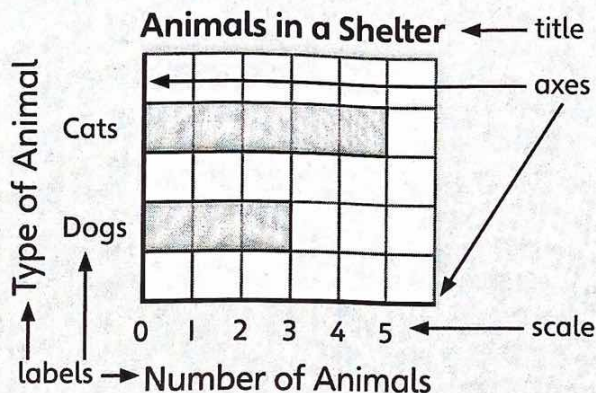
 = 10 students

PDM3-7 Introduction to Bar Graphs

A bar graph uses bars to show data.

Each bar graph has a **title**, **labels**, **two axes**, and a **scale**.

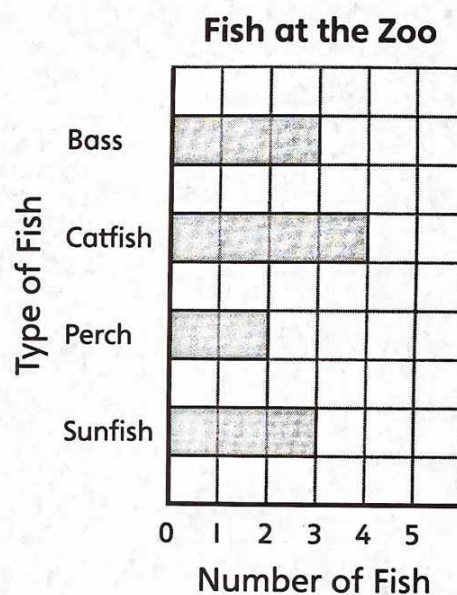
This bar graph shows that there are 5 cats and 3 dogs in a shelter.



1. The bar graph shows fish at the zoo.

a) Use the bar graph to fill in the table.

| Type of Fish | Number of Fish |
|--------------|----------------|
| Bass | 3 |
| Catfish | |
| Perch | |
| Sunfish | |



b) What is the most common fish? _____

c) What is the least common fish? _____

d) How many fish are at the zoo in total? _____

2. Use the bar graph to answer the questions.

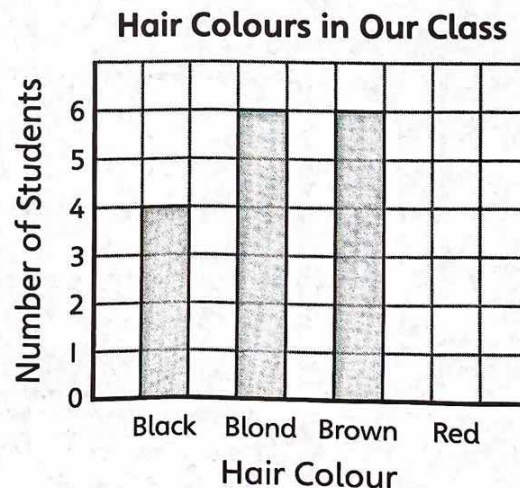
a) How many students have black hair? _____

b) How many students have blond hair? _____

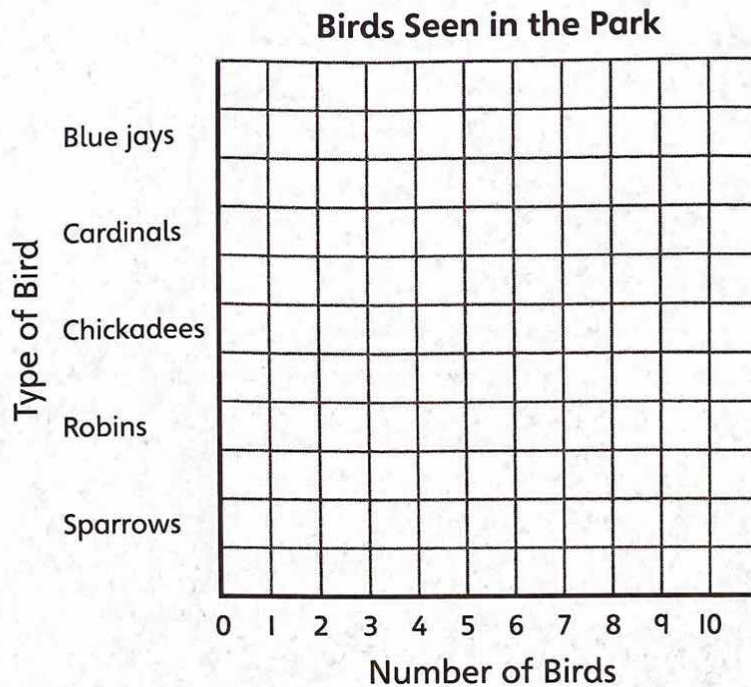
c) 2 students have red hair. Draw a bar for them.

d) How many students do not have black hair? _____

e) How many students are in the class? _____



3. Arsham counted birds he saw in the park.
 a) Use the table to complete the bar graph.



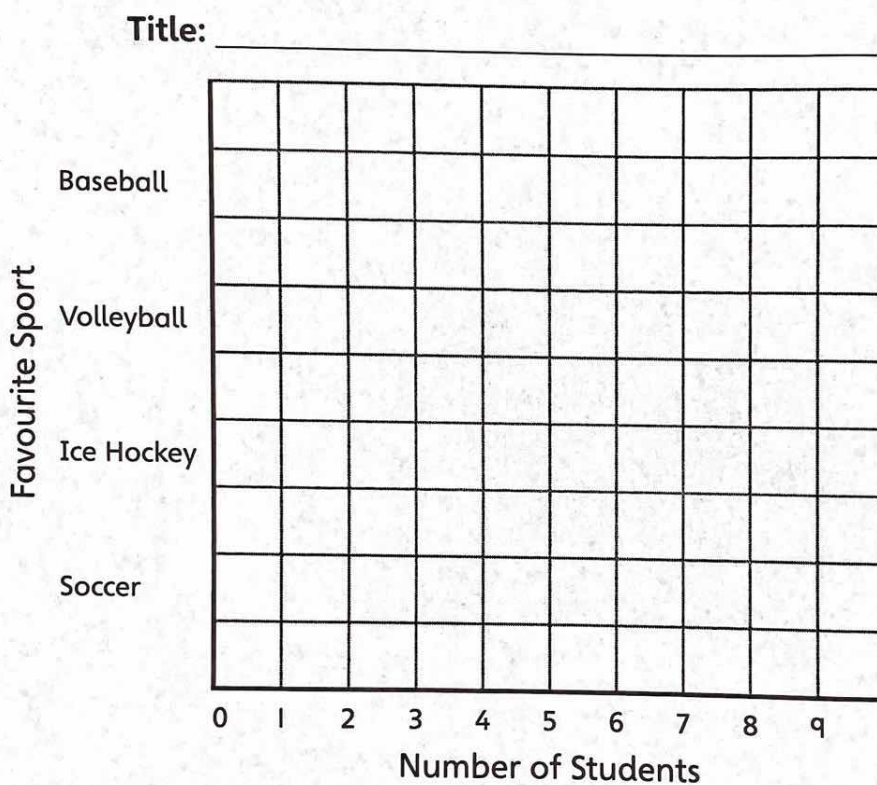
| Type of Bird | Number of Birds |
|--------------|-----------------|
| Blue jays | 2 |
| Cardinals | 4 |
| Chickadees | 7 |
| Robins | 4 |
| Sparrows | 10 |

- b) What was the most common bird seen in the park? _____
 How does the bar graph show it? _____
- c) How many more sparrows than robins did Arsham see? _____
- d) How many birds did Arsham see in total? _____
- e) A blue jay has a mass of about 85 g. How much did the blue jays that Arsham saw weigh altogether? _____
- f) A sparrow has a mass of about 20 g. What weighs more, all the sparrows that Arsham saw or all the blue jays he saw?
- g) A chickadee has a mass of about 10 g. Do all the chickadees Arsham saw weigh more altogether than one blue jay?
- h) A cardinal has a mass of about 45 g. Use doubling to find the mass of all the cardinals Arsham saw.
- i) A robin has a mass of about 80 g. How much do all the robins that Arsham saw weigh altogether?
- BONUS** ► What was the total mass of all the birds Arsham saw?

4. Amy asked her friends about their favourite sports and recorded the results in a tally chart.

| Favourite Sport | Baseball | Volleyball | Ice Hockey | Soccer |
|-----------------|----------|------------|------------|--------|
| Tally | | | | |
| Count | | | | |

- a) Complete the "count" on Amy's tally chart.
- b) Use Amy's tally chart to complete the bar graph below.

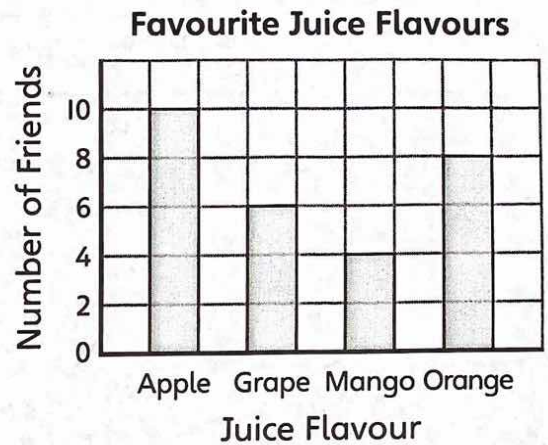


- c) Which sport has the most data values? _____
- How can you find that from the graph? _____
- _____
- d) Write two conclusions Amy can make from her data.
- _____
- _____

PDM3-8 Bar Graphs

Some bar graphs use skip counting in a scale.

1. Tessa asked her friends which juice they like best. She made a bar graph to show the results.



a) What was the most popular flavour?

b) What was the least popular flavour?

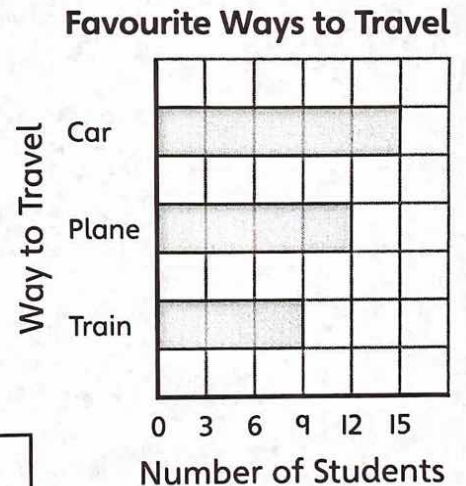
c) Roy wants to bring the 2 most popular flavours of juice to a party. Which flavours of juice should he bring?

d) What number does the scale skip count by? _____

e) Skip count to fill in the table using the bar graph.

| Juice Flavour | Apple | Grape | Mango | Orange |
|-------------------|-------|-------|-------|--------|
| Number of Friends | 10 | | | |

2. Rick asked his classmates if they liked travelling by car, plane, or train the most. He shows the answers in a bar graph.



a) What number does the scale skip count by? _____

b) The bar for car travel is _____ blocks long.

Each block shows _____ students.

c) Use the bar graph to fill in the table.

| Way to Travel | Number of Blocks | Multiplication | Number of Students |
|---------------|------------------|-------------------|--------------------|
| Car | 5 | $5 \times 3 = 15$ | 15 |
| Plane | | | |
| Train | | | |

3. A national park asked 100 people to vote for their favourite activity in the park. Some results are shown in the table.

| Activity | Number of People |
|----------|------------------|
| Boating | 10 |
| Cycling | |
| Hiking | 15 |
| Swimming | 50 |

a) How many people did not choose cycling?

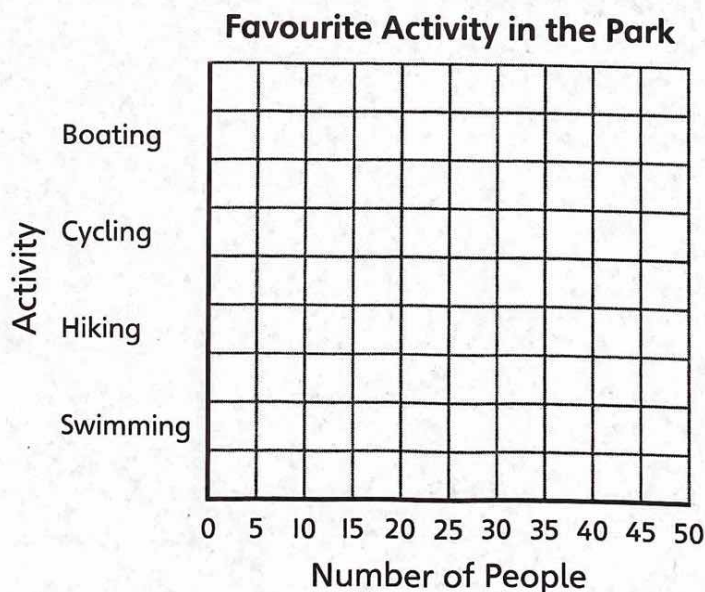
b) How many people chose cycling?
Write this number in the table.

c) What number does the scale in the bar graph in part e) below count by? _____

d) Fill in the table.

| Activity | Number of People | Division | Length of Bar (Blocks) |
|----------|------------------|-----------------|------------------------|
| Boating | 10 | $10 \div 5 = 2$ | 2 |
| Cycling | | | |
| Hiking | | | |
| Swimming | | | |

e) Finish the bar graph.



4. Grade 3 students collected coats for charity.

They collected 3 times as many coats in January as in December.

They collected 6 more coats in February than in December.

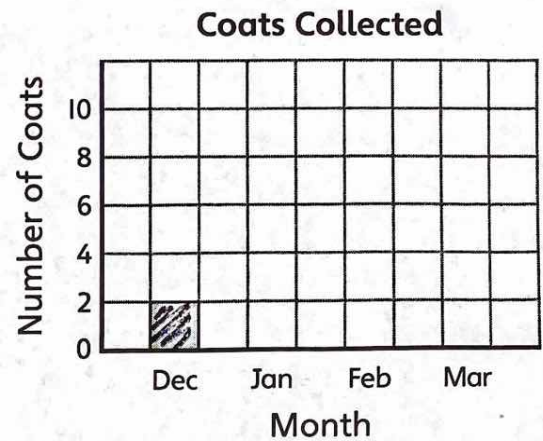
Altogether, they collected 18 coats.

a) Use the clues above to fill in the missing bars.

b) In which month did students collect the most coats? _____

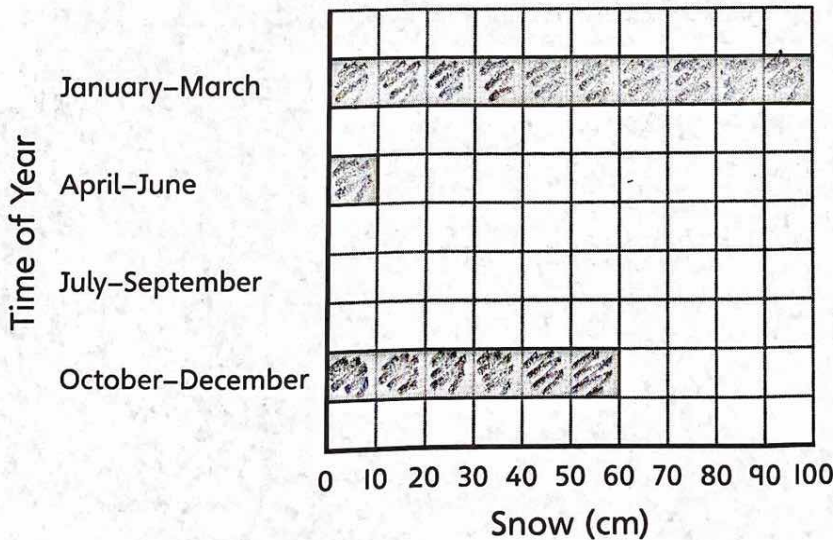
c) In which two months did students collect the same number of coats? _____ and _____

d) How many fewer coats did students collect in March than in February? _____



5. The bar graph shows how much snow fell in Ottawa, ON, during the year.

Average Snowfall in Ottawa, ON



a) How many more centimetres of snow fell in the first three months of the year than in the last three months of the year?

b) How much snow fell in the whole year?

c) Which months have no bar? Explain why this makes sense.

PDM3-9 Scales on Bar Graphs

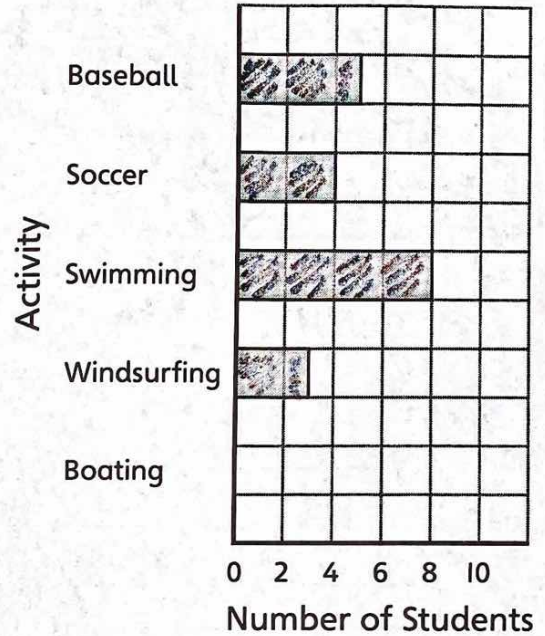
A bar can end between two numbers on a bar graph.

- I. Students voted for their favourite summer activity. The bar graph shows the results.

a) Fill in the table.

| Favourite Activity | Number of Students |
|--------------------|--------------------|
| Baseball | 5 |
| Soccer | |
| Swimming | |
| Windsurfing | |

Favourite Summer Activity



- b) 7 students picked boating. Add the bar for them to the bar graph.

c) Fill in the blanks.

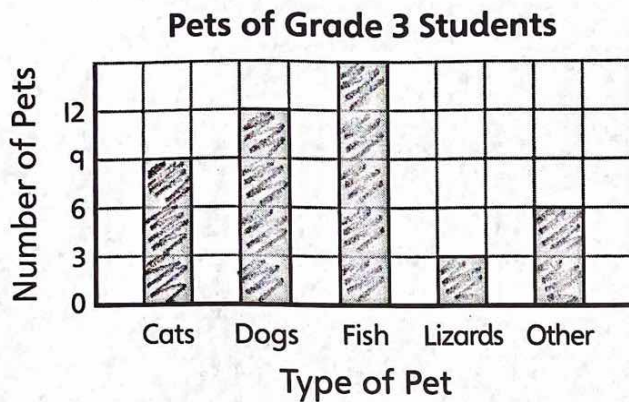
- _____ fewer students picked soccer than swimming.
 _____ more students picked swimming than baseball.
 _____ students picked water activities.
 _____ more students chose water activities than ball games.
 _____ was the most popular activity.
 _____ was the least popular activity.



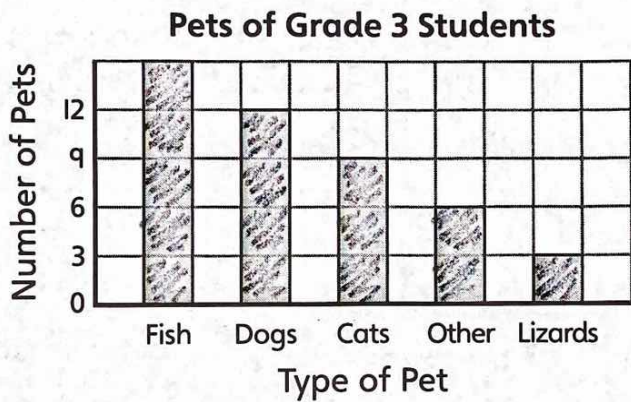
BONUS ► Kevin thinks that the bar for swimming is 2 blocks longer than the bar for soccer, so 2 more students voted for swimming. Is he correct? Explain.

2. Jake and Hanna asked their classmates about pets. The bar graphs show the results.

Jake's bar graph:

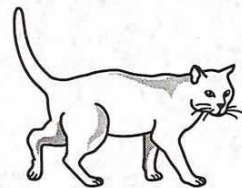


Hanna's bar graph:



- a) Fill in the table.

| Type of Pet | Number of Pets | |
|-------------|----------------|---------------|
| | Jake's Graph | Hanna's Graph |
| Cats | | |
| Dogs | | |
| Fish | | |
| Lizards | | |
| Other | | |



- b) Do the graphs show the same information? _____

Do the graphs look the same? _____

- c) How did Jake choose to order the labels on the horizontal axis?

How did Hanna choose to order the labels on the horizontal axis?

- d) Which pet was the most common? _____

On which graph is it easier to see that? _____