

# WALT: interpret pictograms.

NC:

- interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

# Statistics

This week, we will be learning about statistics!

We will be looking at the importance of data and the different ways it can be presented, depending on the type and scale of information we have.

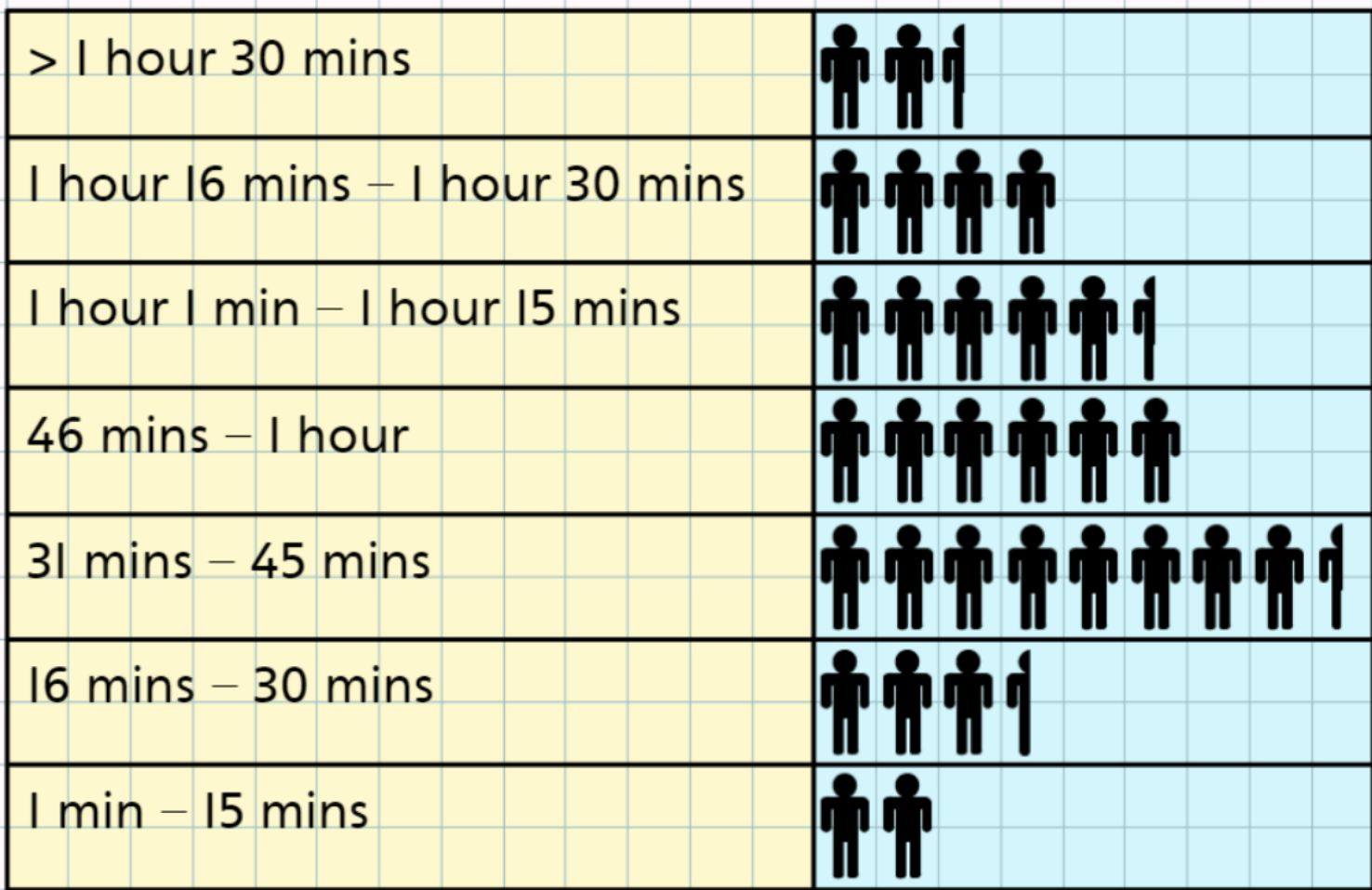
Specifically, we will be looking at pictograms, bar charts and line graphs.

A coffee shop carried out a survey on how long people stayed there in the morning.

The results of the survey are displayed in this pictogram.

**What does the pictogram tell us?**

**How long people stay in the coffee shop in the morning**

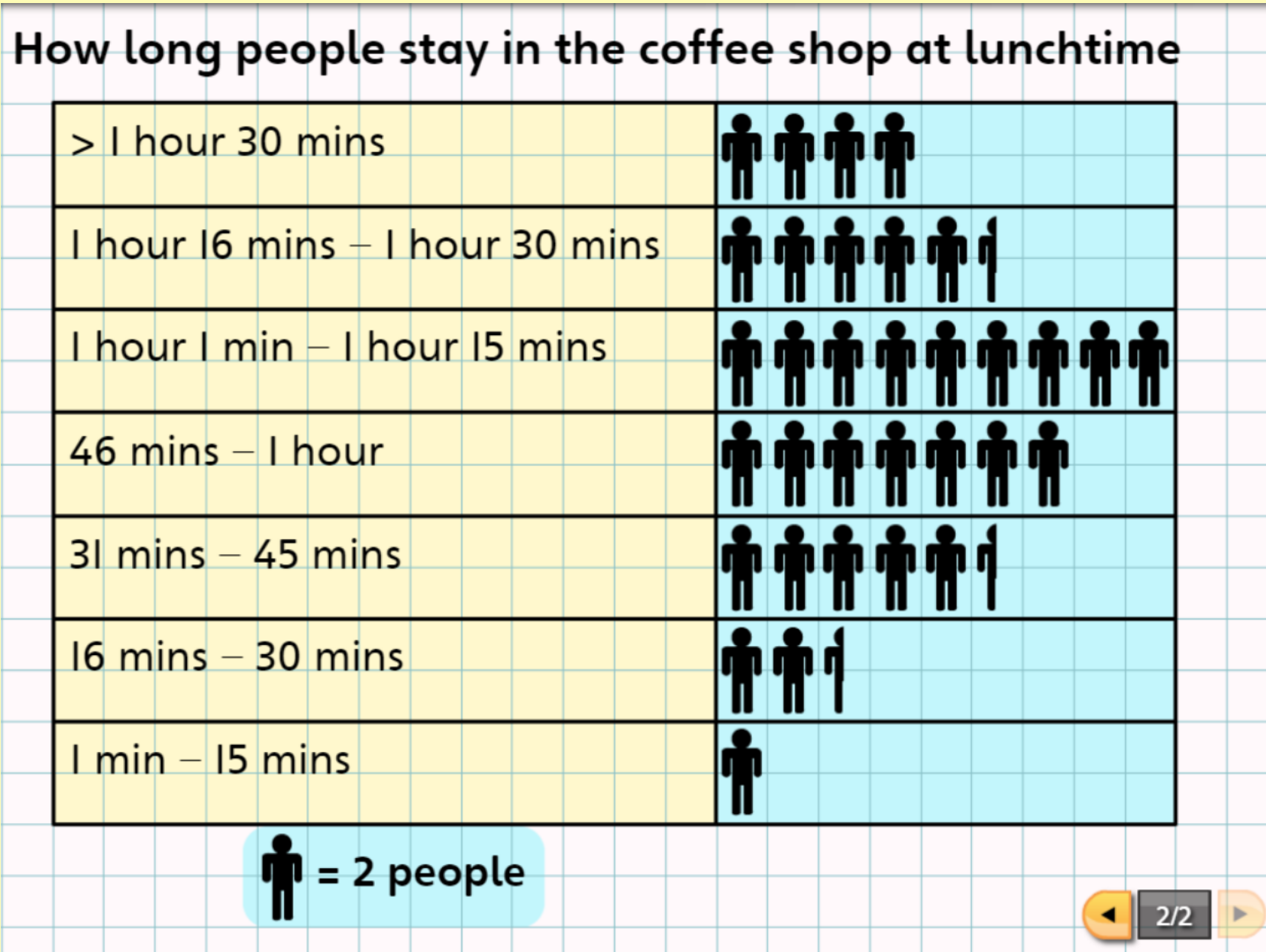


 = 2 people

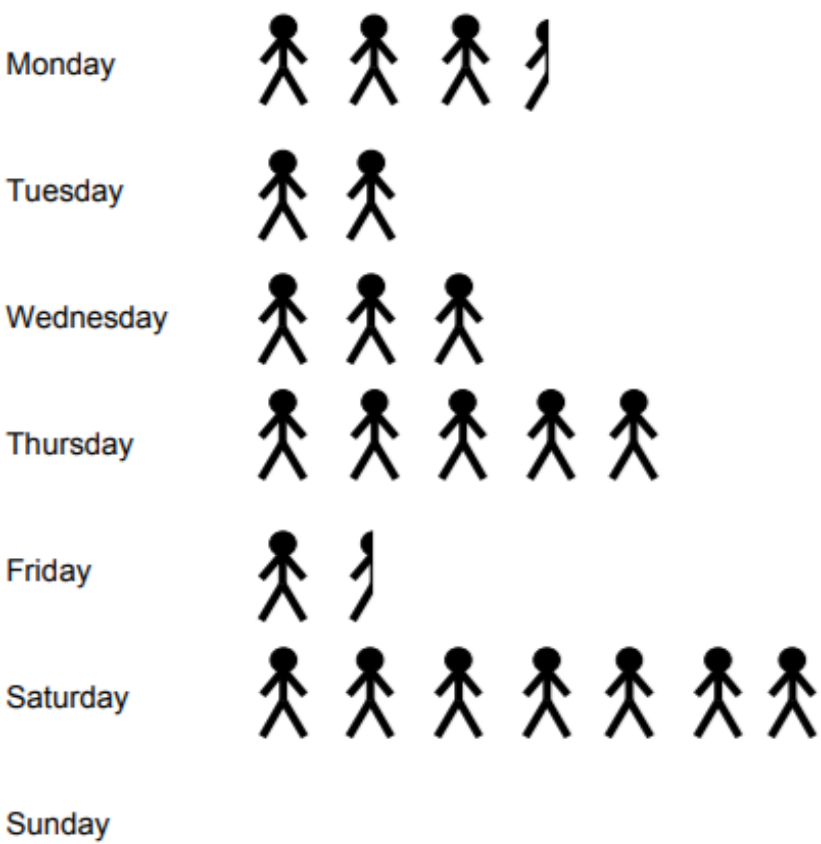
The same coffee shop carried out another survey on how long people stayed there at lunchtime.

The results of the survey are displayed in this pictogram.

**What does the pictogram tell us?**



Pictogram showing how many people visited a local library on different days of a week.



**Key**

 = 10 people

 = 5 people

Try to answer the questions below, using the information on the pictogram.

Questions:

1. On what day were there no visitors to the library? Suggest why this might be.
2. Which day was the most popular for visiting the library? Suggest why this might be.
3. What was the difference between the number of visitors on Thursday and Friday?
4. Can you suggest any reasons why there might be such a difference in the number of visitors on these two days?

## **Your task:**

Choose to complete either the mild, medium or hot pictogram worksheet!

**WALT: interpret pictograms.**

This **pictogram** shows how many cars were in Matt the mechanic's garage last week.

How many cars were in the garage each day?

| Day of the week | Amount of cars                                                                                                                                                                                                                                                                                                                                                                                                                          | Number |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Monday          |                                                                                                                                                                                                                                                                       |        |
| Tuesday         |                                                                                                                                                                                                                                                                                                                                                        |        |
| Wednesday       |                                                                                                                                                                                     |        |
| Thursday        |                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |
| Friday          |   <br>  |        |

MILD

Use the **pictogram** to answer these questions. Remember to read the questions carefully!

On which day was there **only 1** car in the garage? \_\_\_\_\_

On which day were the **most** amount of cars in the garage? \_\_\_\_\_

On which day were the **least** amount of cars in the garage? \_\_\_\_\_

How many cars were there **altogether**? \_\_\_\_\_

# MEDIUM

**WALT: interpret pictograms.**

This pictogram shows how many vans were in Matt the mechanic's garage last week.

How many vans were in the garage each day?

| Day of the week | Amount of vans                                                                       | Number |
|-----------------|--------------------------------------------------------------------------------------|--------|
| Monday          |    |        |
| Tuesday         |     |        |
| Wednesday       |                                                                                      |        |
| Thursday        |   |        |
| Friday          |  |        |

Use the **pictogram** to answer these questions. Remember to read the questions carefully!

How many vans were in the garage **altogether**? \_\_\_\_\_

How many **more** vans were in the garage on **Monday** than on **Tuesday**? \_\_\_\_\_

How many vans were there **altogether** on **Thursday** and **Friday**? \_\_\_\_\_

If there had been **1 more** van on **Tuesday** how many vans would there have been? \_\_\_\_\_

On Monday there were 3 vans. On which day was there **double this** amount of vans? \_\_\_\_\_



**WALT: interpret pictograms.**

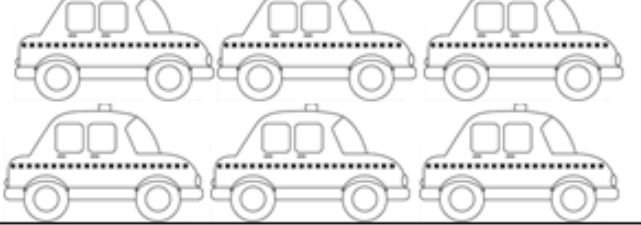
This pictogram shows how many taxis were in Matt the mechanic's garage last week.

How many taxis were in the garage each day?

KEY



= 2 taxis

| Day of the week | Amount of taxis                                                                     | Number |
|-----------------|-------------------------------------------------------------------------------------|--------|
| Monday          |    |        |
| Tuesday         |    |        |
| Wednesday       |   |        |
| Thursday        |  |        |
| Friday          |  |        |

# HOT

Use the **pictogram** to answer these questions. Remember to read the questions carefully!

How many taxis were in the garage **altogether**? \_\_\_\_\_

**How many more** taxis were in the garage on **Monday** than on **Tuesday**? \_\_\_\_\_

How many taxis were there **altogether** on **Tuesday** and **Wednesday**? \_\_\_\_\_

If there had been **3 more** vans on **Tuesday**, how many vans would there have been? \_\_\_\_\_

On which day were there **double** the amount of vans as there were on **Thursday**? \_\_\_\_\_

# Extension

How many people visited the cinema in a week  = 100 people

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sunday    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Monday    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Tuesday   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Wednesday |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Thursday  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Friday    |           |
| Saturday  |                                                                                                                                                                                                                                                                 |

Tasha went to the cinema and there were no queues. What day do you think Tasha went to the cinema? Explain your answer.

 = 8 children

Children who bought cookies after school at the school bake off.

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Monday    |                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Tuesday   |          |
| Wednesday |                                                                                                                                                                                                                                                                   |
| Thursday  |                                                                                                                                                                                                                                                                   |
| Friday    |          |

Craig answered questions about this pictogram. Can you spot his mistake and correct it?

How many children bought a cookie on Tuesday?

68

How many children bought a cookie on Thursday?

44

# Extension

How many people visited the cinema in a week  = 100 people

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sunday    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Monday    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Tuesday   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Wednesday |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Thursday  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Friday    |             |
| Saturday  |                                                                                                                                                                                                                                                                                                                                                                                                                                            |

There were more people who visited the cinema on Sunday and Monday, than Friday.

True

☐

False

☐

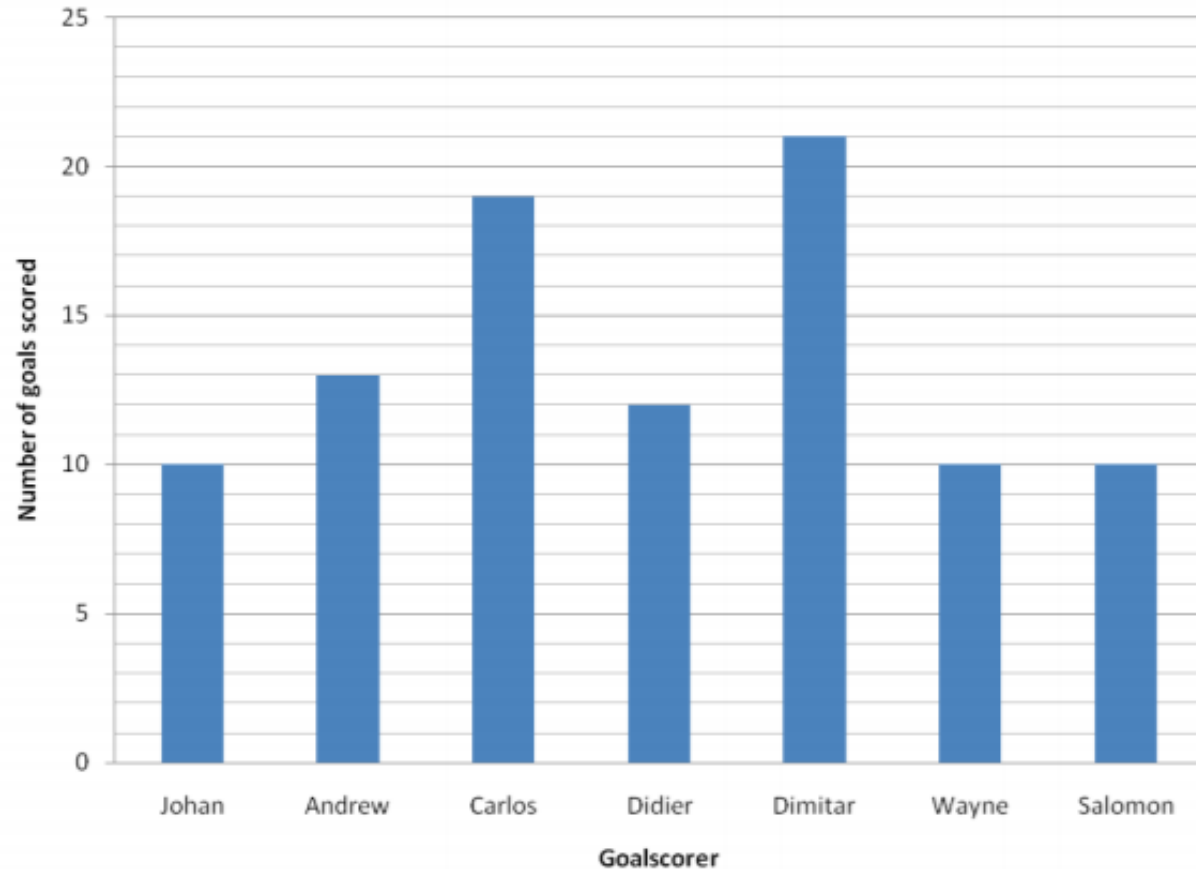
Explain your answer.

# WALT: interpret and draw bar charts.

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**Bar chart showing number of goals scored by some top goalscorers in 2010/2011**



**Try to answer the questions below, using the information on the bar chart.**

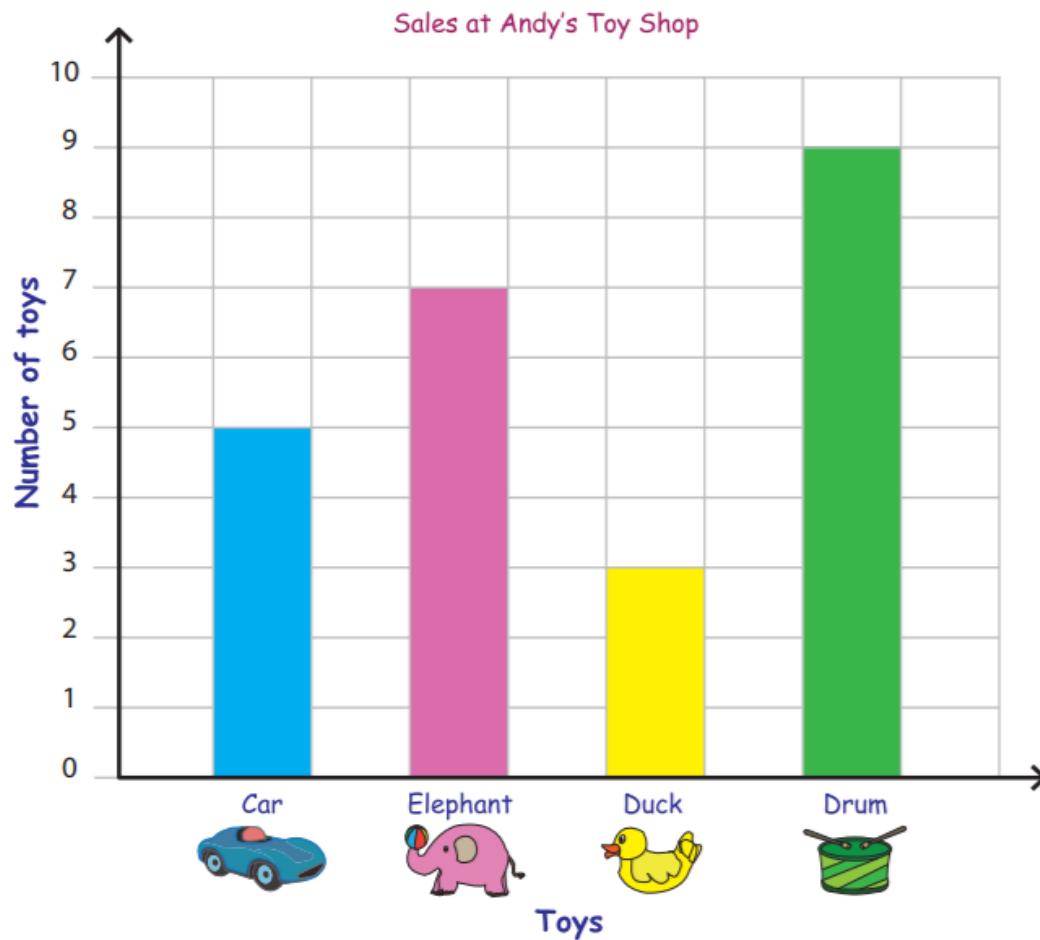
**Answer the following questions using the bar chart above:**

1. Who scored the most goals?
2. How many goals did Carlos score?
3. Which three players scored ten goals?
4. How many more goals did Dimitar score than Didier?
5. How many players scored more than 15 goals?

## **Your task:**

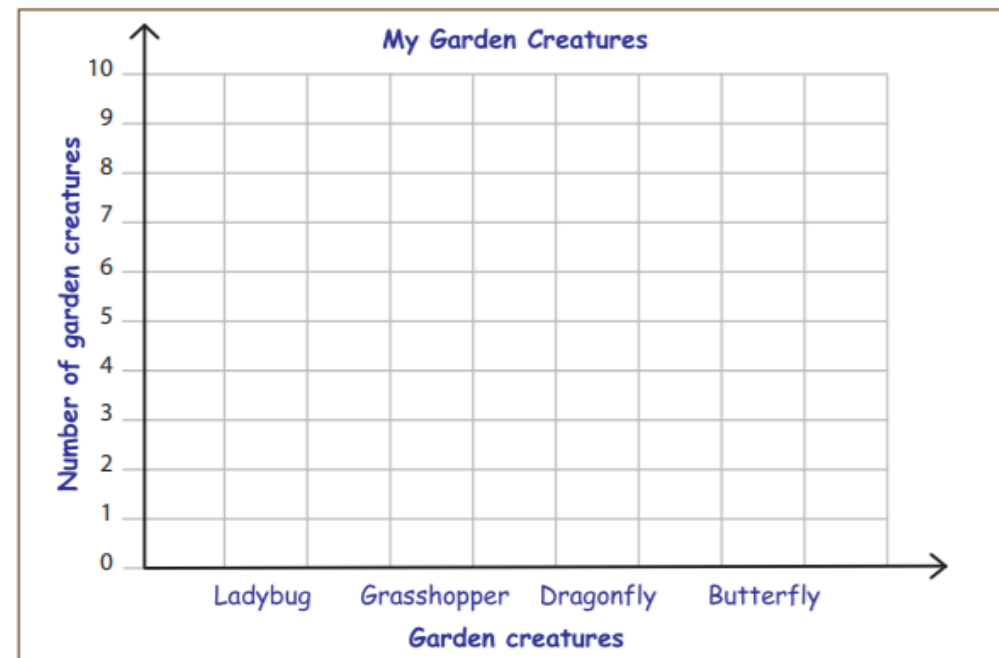
Choose to complete either the mild, medium or hot bar chart worksheets!

# MILD

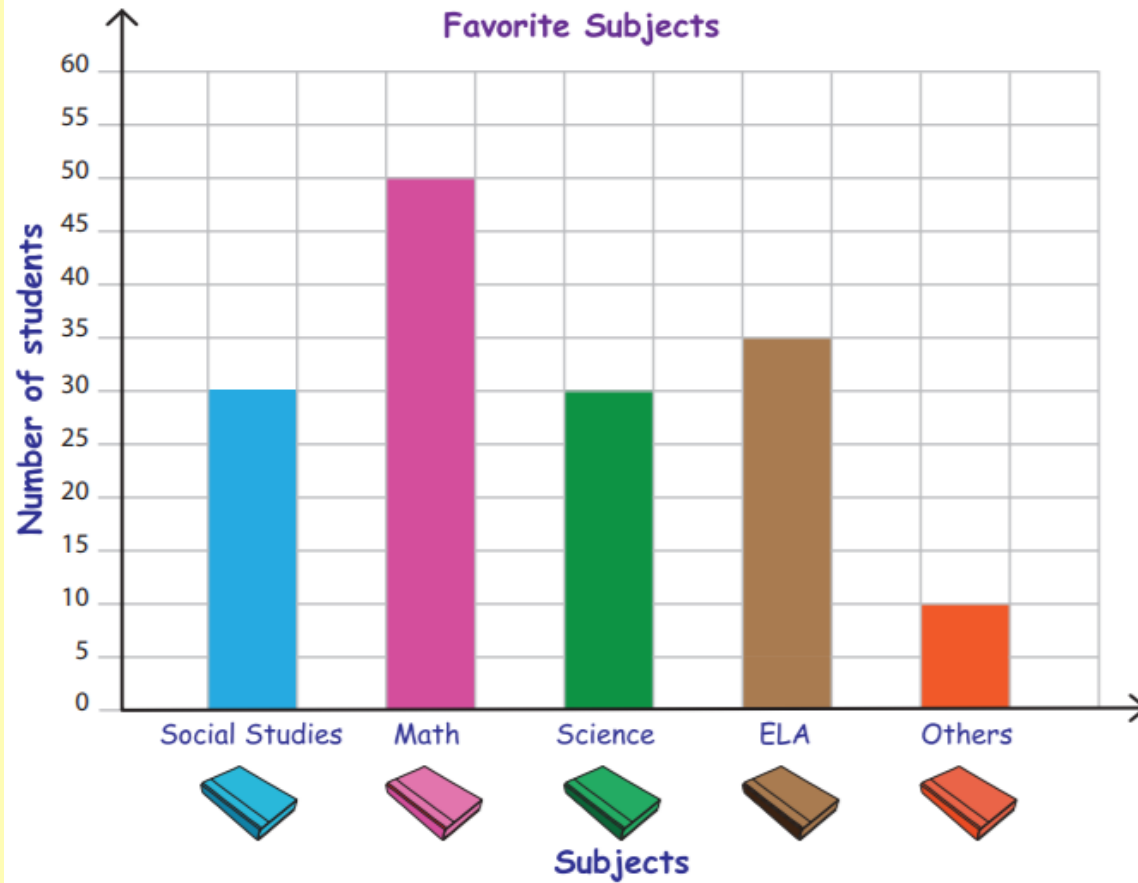


- 1) How many cars were sold? \_\_\_\_\_
- 2) How many more elephants than ducks were sold? \_\_\_\_\_
- 3) Which toy sold the most? \_\_\_\_\_
- 4) How many elephants and drums were sold in all? \_\_\_\_\_
- 5) Which toy did the shop sell more, car or duck? \_\_\_\_\_

| Ladybug                                                                             | Grasshopper                                                                        | Dragonfly                                                                           | Butterfly                                                                           |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |
| 7                                                                                   | 3                                                                                  | 5                                                                                   | 9                                                                                   |

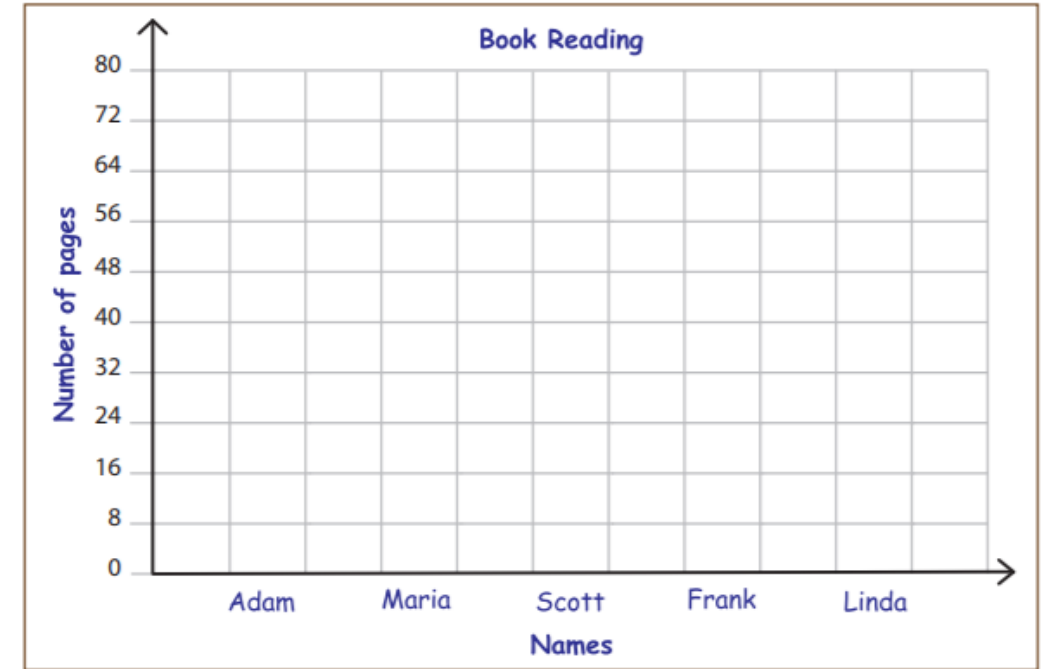


- 1) How many grasshoppers did she see? \_\_\_\_\_
- 2) Did she see more ladybugs or dragonflies? \_\_\_\_\_
- 3) Which creature did she see the most? \_\_\_\_\_
- 4) Name all the four garden creatures.  
\_\_\_\_\_



- 1) What unit of scale is used to display the popularity of subjects among the students? \_\_\_\_\_
- 2) Which subject is the second most popular? \_\_\_\_\_
- 3) Which subject is less popular, science or ELA? \_\_\_\_\_
- 4) Which subject is favorite for 50 students? \_\_\_\_\_
- 5) Which subjects have the same number of votes? \_\_\_\_\_

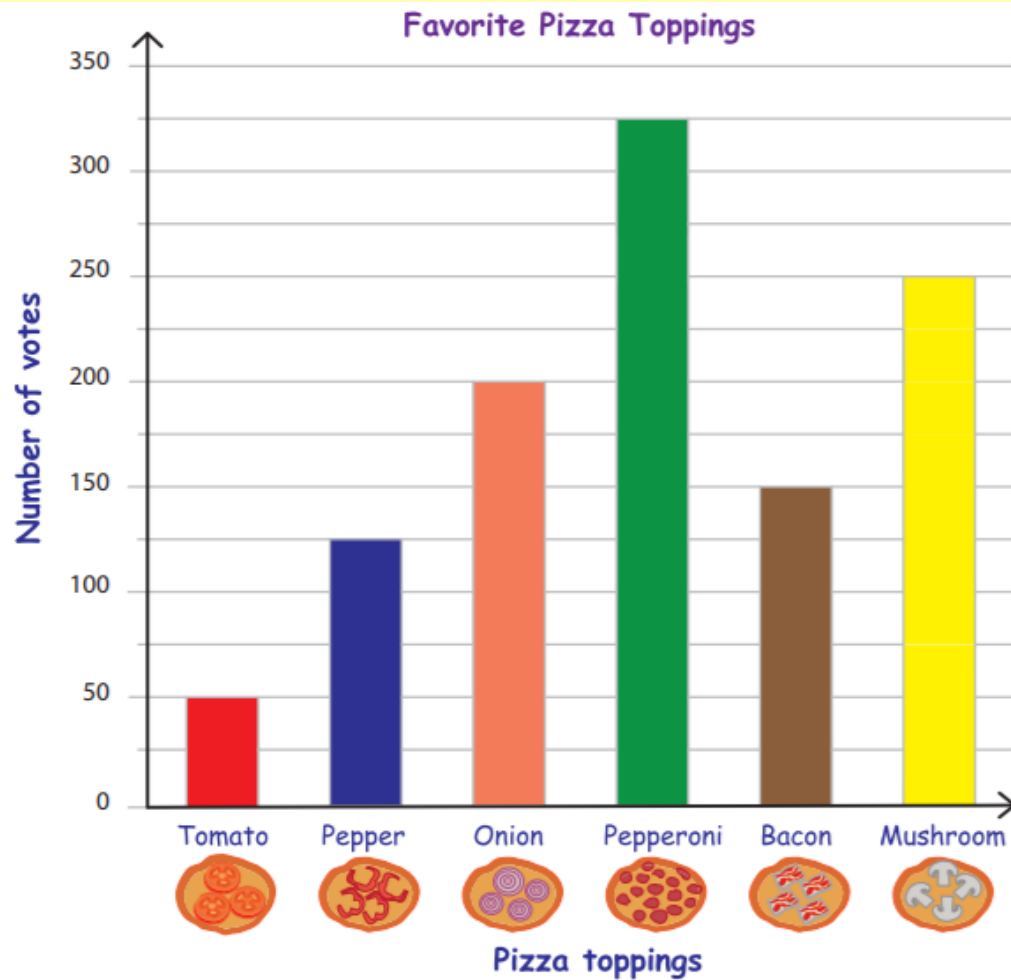
| Adam                                                                                | Maria                                                                               | Scott                                                                               | Frank                                                                               | Linda                                                                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |  |
| 40                                                                                  | 24                                                                                  | 64                                                                                  | 32                                                                                  | 56                                                                                  |



- 1) What unit of scale is used to display the number of pages read? \_\_\_\_\_
- 2) Write the names who have read less than 40 pages. \_\_\_\_\_
- 3) How many pages do Frank, Maria and Scott read in all? \_\_\_\_\_
- 4) If Adam and Linda read the same book, how many more pages does Adam read to reach Linda? \_\_\_\_\_

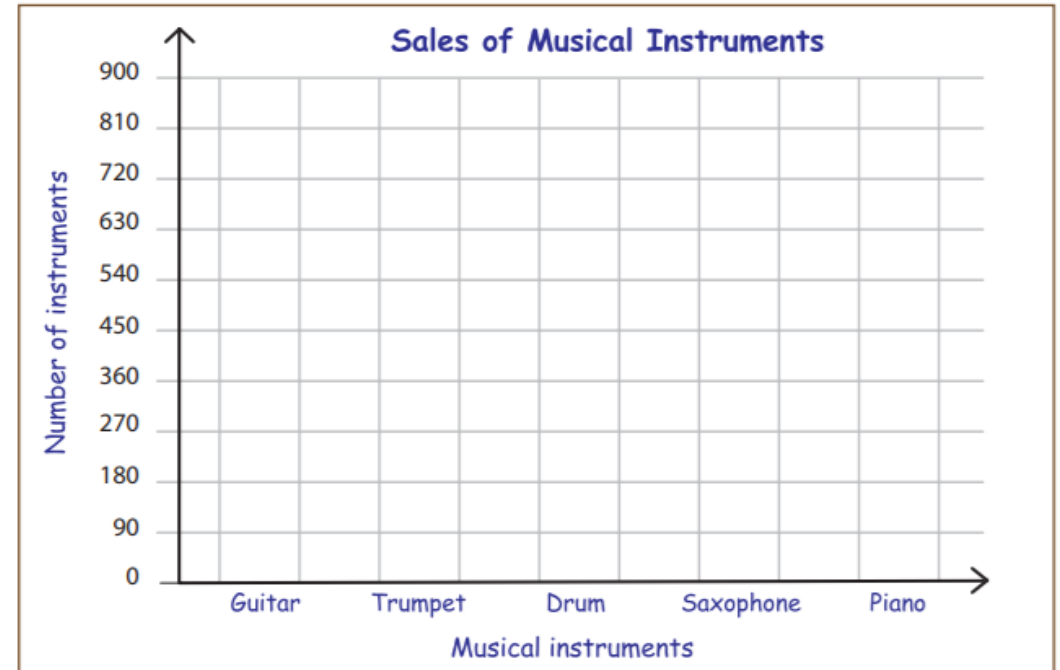


HOT



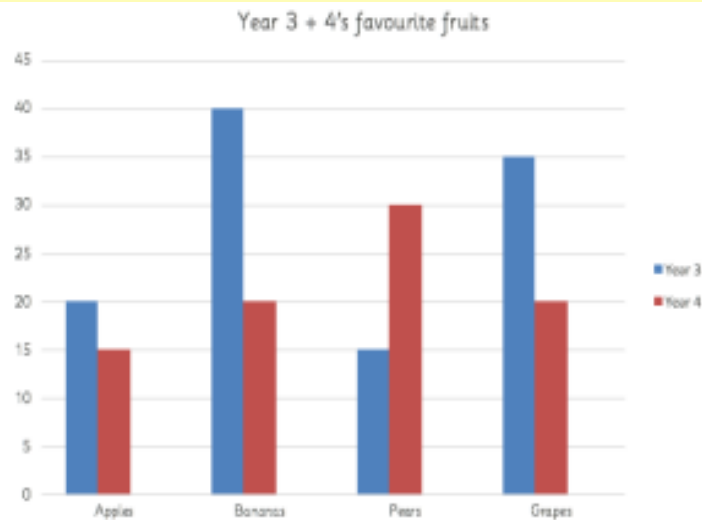
- 1) Which is the most popular topping? \_\_\_\_\_
- 2) How many customers have chosen either tomato or pepper toppings? \_\_\_\_\_
- 3) If 75 more customers prefer bacon, which one will top the chart, bacon or onion? \_\_\_\_\_
- 4) Which topping has 250 votes? \_\_\_\_\_
- 5) List the toppings in order from most popular to least popular. \_\_\_\_\_

| Guitar                                                                              | Trumpet                                                                             | Drum                                                                                | Saxophone                                                                           | Piano                                                                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |  |
| 630                                                                                 | 720                                                                                 | 405                                                                                 | 540                                                                                 | 405                                                                                 |



- 1) How many more guitars than drums were sold? \_\_\_\_\_
- 2) Which two instruments have equal sales? \_\_\_\_\_
- 3) What is the difference on sales between trumpet and saxophone? \_\_\_\_\_
- 4) How many instruments were sold in all? \_\_\_\_\_

# Extension



The children in year 3 liked bananas more than the children in year 4.

True

☐

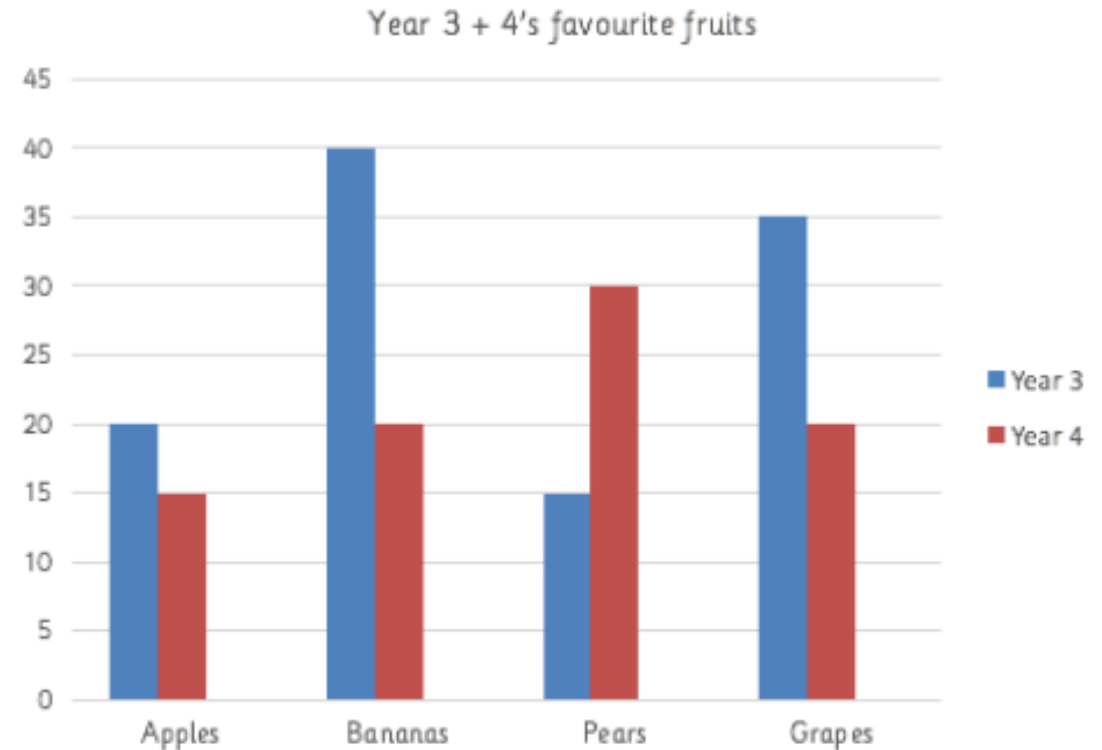
False

☐

Explain your answer.

Add the correct symbols to compare the data.

$>$   $=$   $<$



Year 3: grapes

☐

Year 4: bananas

# WALT: interpret and draw line graphs.

NC:

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# Line Graph

A line graph is a graph used to show change over time!

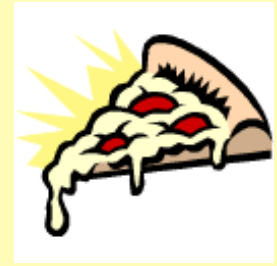
What can time be measured in?

Seconds - Minutes - Hours – Days -  
Weeks - Months – Years - Decades -  
Centuries - etc.

# When do we use a line graph?

Would we use a line graph in the following situations?

- To show how many people like pizza in this class?



NO

- To show how much it rained each month this year?



YES- because months and years deal with time.

- To show how many people live in Walton?



NO

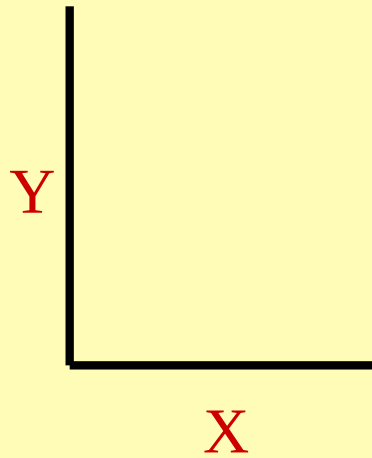
# Birthdays?



**Would we use a line graph to show when our birthdays are?**

- Our birthday does deal with time doesn't it? (months/years)
- But, our birthday is constant, meaning it never changes.
- A line graph shows change in time, so we would not use it for this type of graph.

# How do we make a line graph?



- A line graph ALWAYS has a title!
- A line graph has two different axes
- An axis is either the horizontal line (called x) or the vertical line (called y) that form the base lines of a graph.

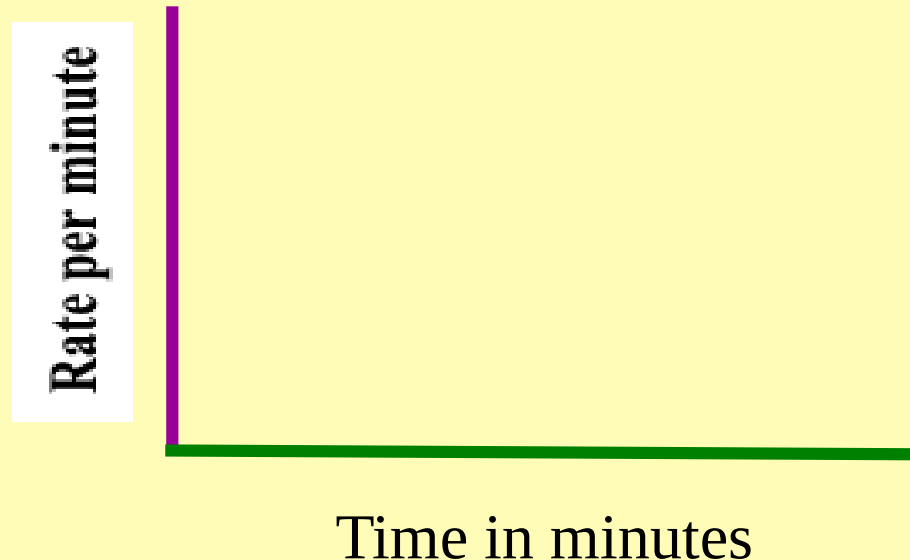
# Intervals

- When we are setting up a line graph, we need to decide what intervals we want to use.
- If we are graphing the temperature for a year, do we want to put 365 days on the graph, and 100 different temperatures?
- When we see a horizontal flat line, that means that there was no change during a specific time period.

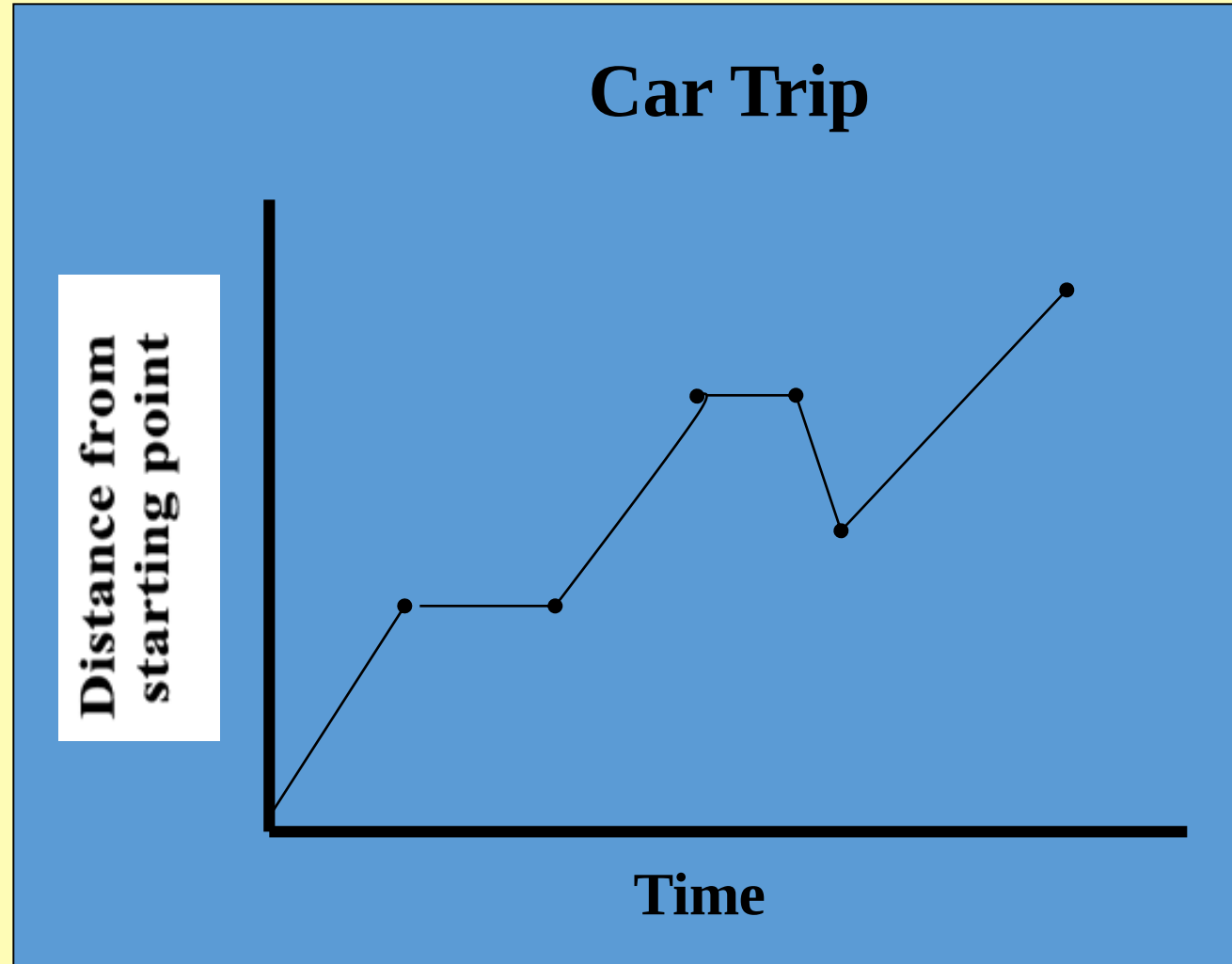


# Plotting a Line graph

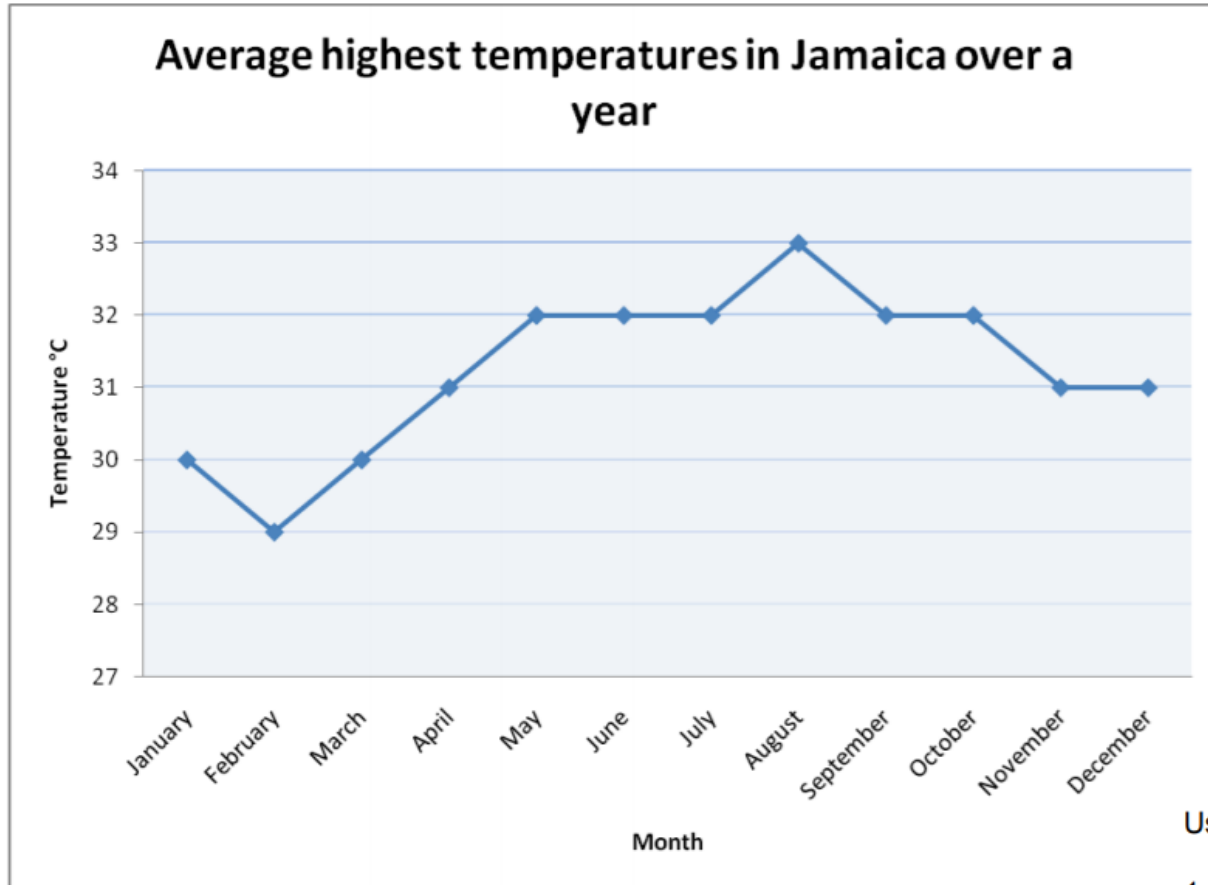
- When we are plotting a line graph, it is important to read what information is on each axis.
- There must be a label on each axis that describes the information.
- Much like a bar graph, we look at the x-axis first in order to plot our points.



Is this an acceptable graph? Why or why not?



The **line graph** shows temperatures over the year in Jamaica.



**Try to answer the questions below, using the information on the line graph.**

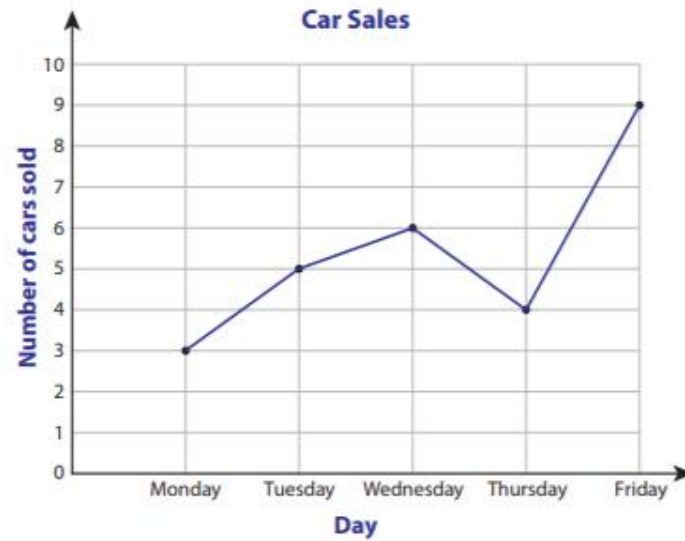
Use the graph to answer the questions below.

1. Which month had the highest temperature?
2. Which month had the lowest temperature?
3. What is the difference in temperature between February and May?
4. How many months have a temperature higher than 30°C?
5. What is the range of temperatures in Jamaica over the year?
6. Would you expect the temperature range in the UK to be similar or different? Explain your answer.

## **Your task:**

Choose to complete either the mild, medium or hot line graph worksheets!

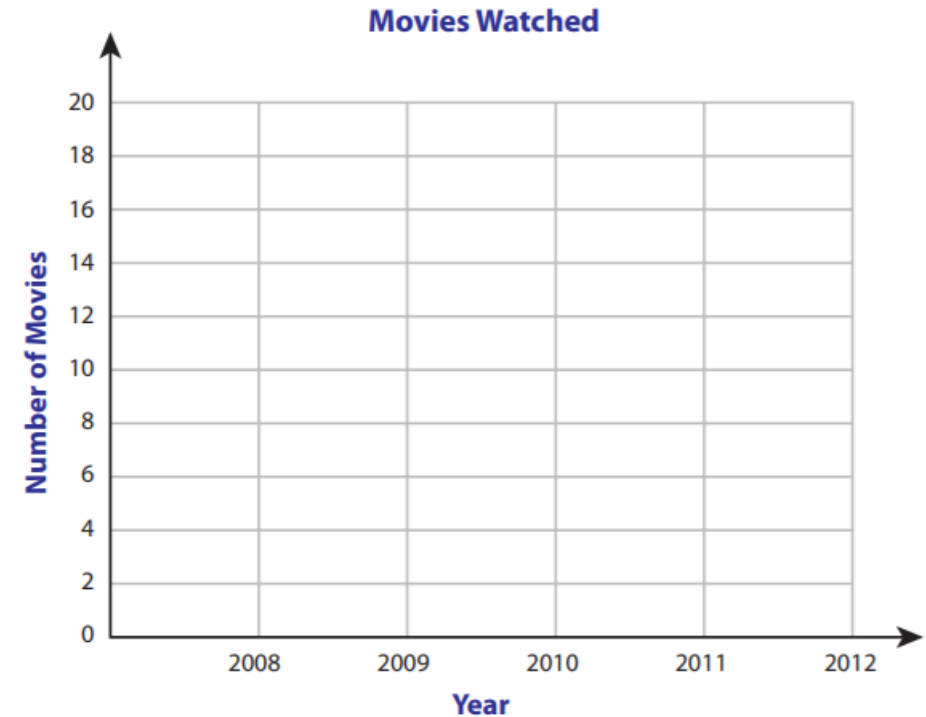
George works as a salesman in an authorized car showroom. He records the number of cars sold in five days (Monday to Friday) on a line graph. Study the graph and answer the questions.



- 1) How many cars were sold in 5 days? \_\_\_\_\_
- 2) On which day were the maximum number of cars sold? \_\_\_\_\_
- 3) How many cars were sold on Wednesday? \_\_\_\_\_
- 4) Which day had the minimum sales of cars? \_\_\_\_\_
- 5) How many more cars were sold on Tuesday than on Monday? \_\_\_\_\_

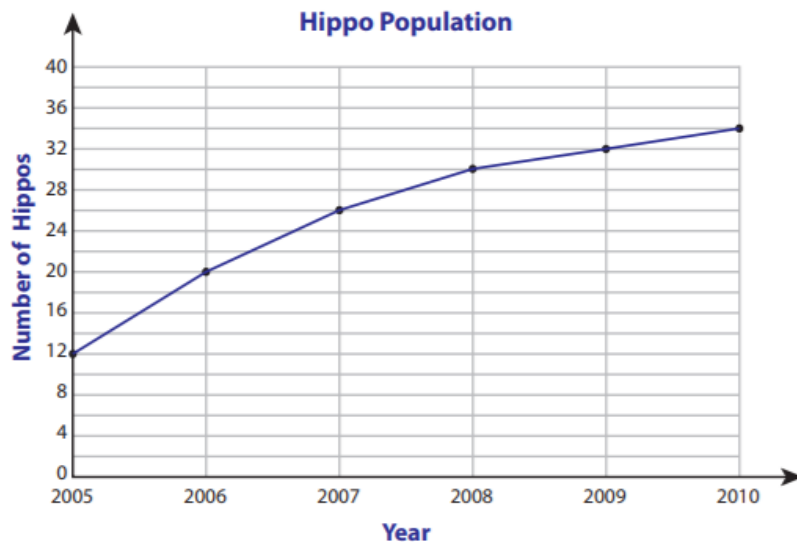
Kim and his family often watch movies at home. The data shows the number of movies watched by them from 2008 to 2012. Draw a line graph to represent the data.

| Year | Number of Movies |
|------|------------------|
| 2008 | 8                |
| 2009 | 12               |
| 2010 | 10               |
| 2011 | 14               |
| 2012 | 18               |



# MEDIUM

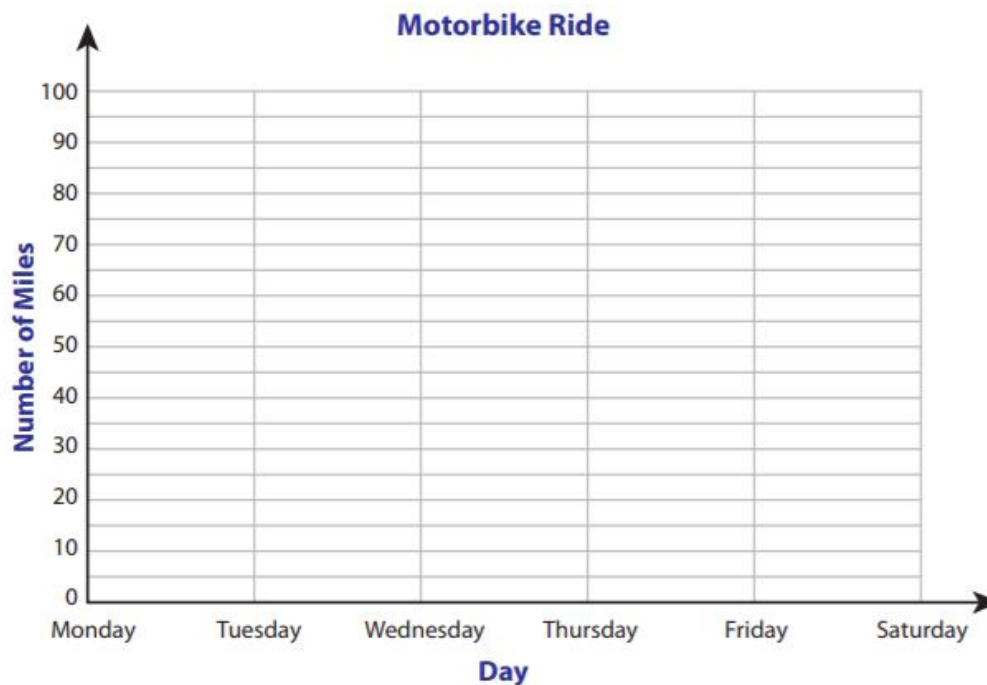
A wildlife biologist made a study on the population growth of hippopotamus and recorded the information on a graph. Answer the questions based on the graph.



- 1) In 2010, what was the population of hippopotamus? \_\_\_\_\_
- 2) How many hippos were there in 2007? \_\_\_\_\_
- 3) In which year did the hippo population reach 30 in number? \_\_\_\_\_
- 4) Which year recorded the minimum hippo population? \_\_\_\_\_
- 5) How many more hippos were recorded in the year 2008 than in 2006? \_\_\_\_\_

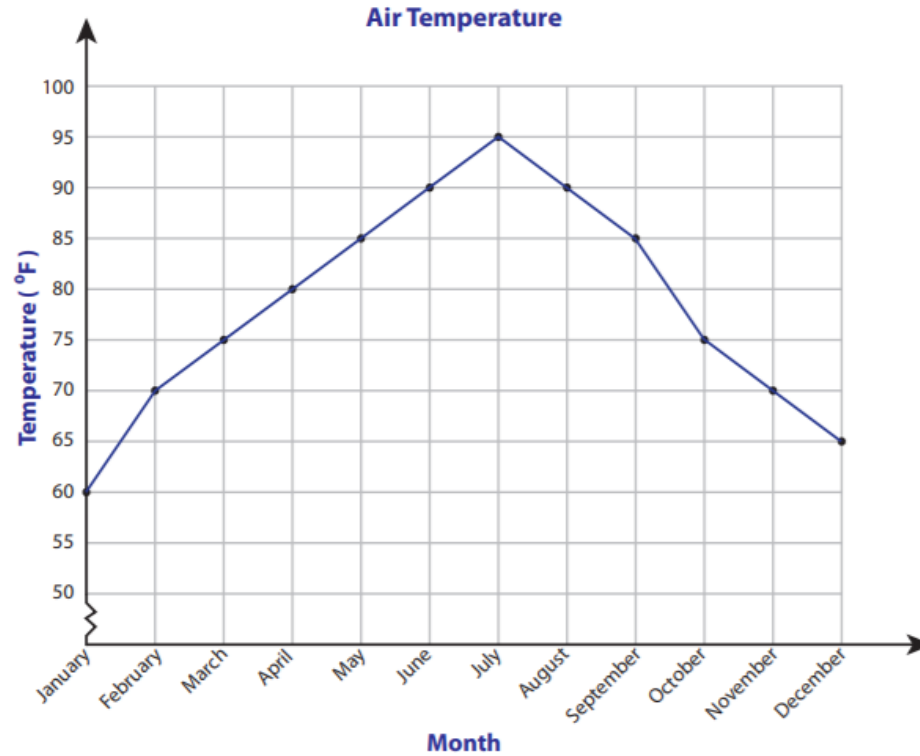
Bradley takes off a road trip in his motorbike for six days. The number of miles covered by him per day is given below. Analyze the data and draw a line graph.

| Day       | Number of Miles |
|-----------|-----------------|
| Monday    | 40              |
| Tuesday   | 55              |
| Wednesday | 70              |
| Thursday  | 80              |
| Friday    | 65              |
| Saturday  | 50              |



# HOT

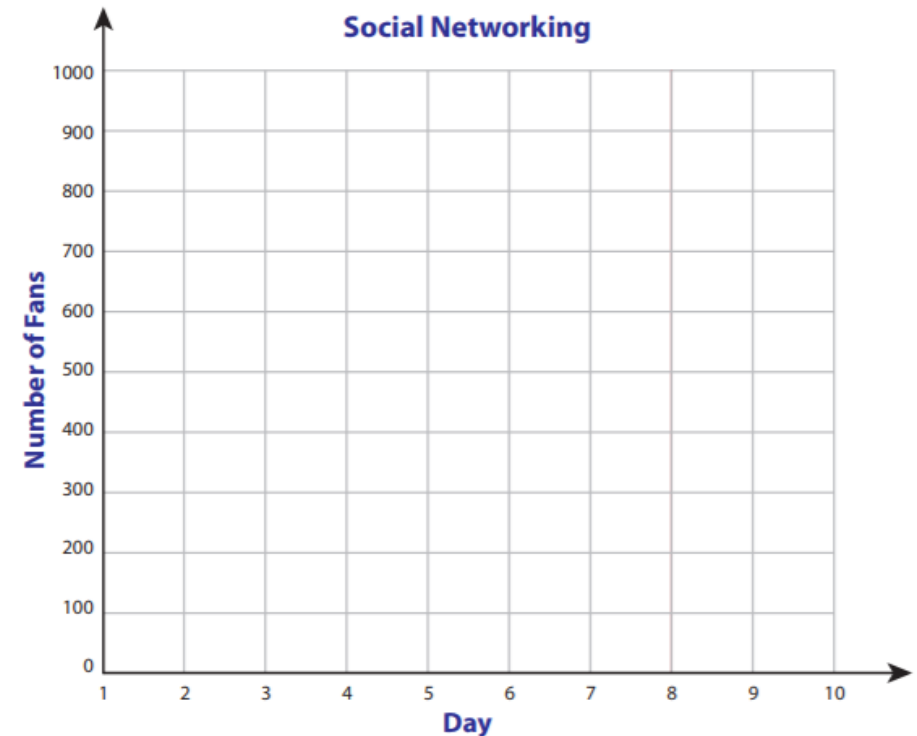
David, a meteorologist recorded the variations in air temperature (in °F) throughout the year. He made a line graph displaying the recorded information. Read the graph and answer the questions.



- 1) What is the highest recorded temperature? \_\_\_\_\_
- 2) Where do you see a raise of 10°F in the graph? \_\_\_\_\_
- 3) Which is the coldest month? \_\_\_\_\_
- 4) Which month recorded 80°F? \_\_\_\_\_
- 5) What is the temperature recorded in the month of December? \_\_\_\_\_

Rockstar Jim's music album had just been released. The number of fan followers from a leading social networking site for the first ten days are noted. Read the data and draw a line graph.

| Day | Number of Fans |
|-----|----------------|
| 1   | 300            |
| 2   | 500            |
| 3   | 550            |
| 4   | 800            |
| 5   | 600            |
| 6   | 700            |
| 7   | 850            |
| 8   | 600            |
| 9   | 450            |
| 10  | 300            |



# Extension 1



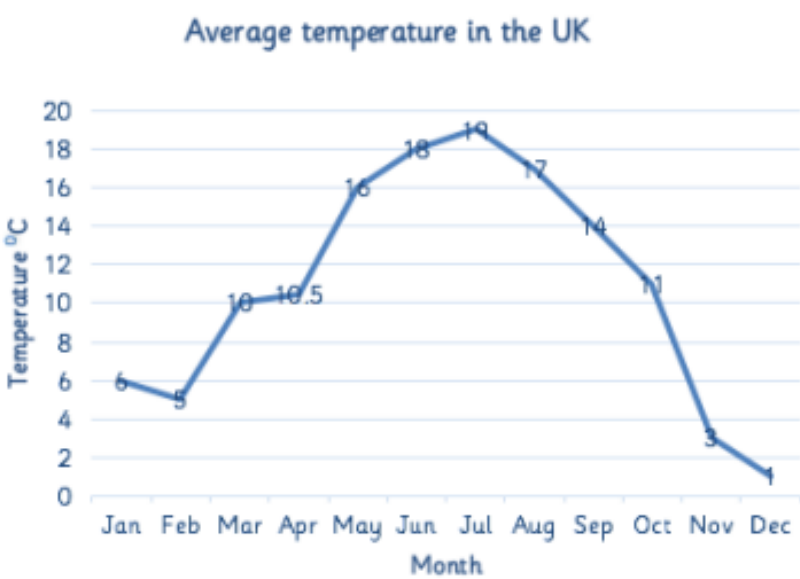
What time do you think the store has their daily sale?  
Explain your answer.

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| Month     | Temperature °C |
|-----------|----------------|
| January   | 6              |
| February  | 5              |
| March     | 10             |
| April     | 10.5           |
| May       | 16             |
| June      | 18             |
| July      | 21             |
| August    | 17             |
| September | 14             |
| October   | 11             |
| November  | 4              |
| December  | 1              |



Amina has made a linear graph using the table.

Can you spot any mistakes? Explain any mistakes and correct it.



# Extension 2



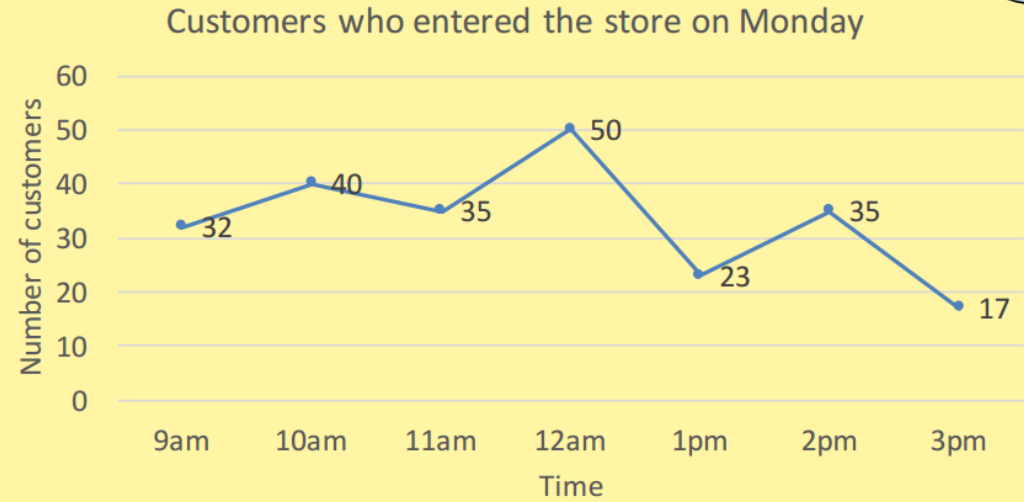
Ahmed has answered the following questions.

Can you spot any mistakes? Explain any mistakes and correct them.

How many customers entered the store at 1pm? 23

How many more people entered the store at 11am than 9 am? 4

What type of graph is this? bar graph



➤ What time do you think the store has their daily sale?

Explain your answer.