



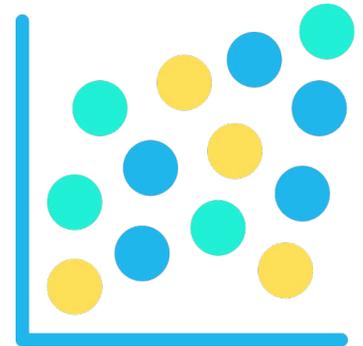
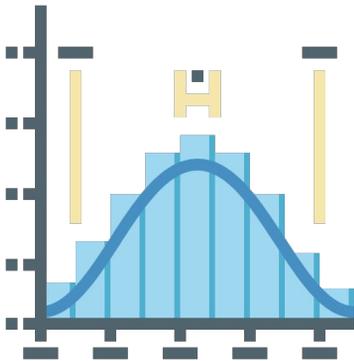
Helping With Math

Constructing Statistical Displays

GRADE 6



In statistics, displays, charts, and tables are vital in organizing and presenting data--- most especially large amount of distribution. These displays contribute a lot for more complex interpretation and more accurate conclusion.



The images above are some examples of presenting and organizing data using tables and charts. Why do you think these displays are useful and important in life?



ORGANIZING DATA

You conducted a survey about the number of voters that your batchmates have at home. These are the responses of 35 people who responded on your poll.

3	1	5	3	2
2	5	3	4	1
0	4	8	6	2
0	5	8	7	7
4	8	3	1	1
5	0	7	8	3
4	4	6	3	2

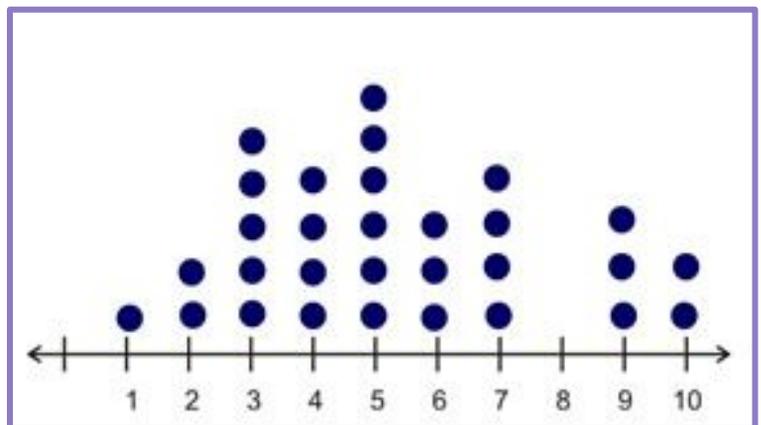


If you are asked to organize and present the collected data in a more systematic way/s, how will you do it?

Don't worry! There are statistical displays that will help you sort these numerous data!

DOT PLOT

It is a graphical display of data using dots. In here, each dot represents a unit of data. Dot plots work well for small sets of data, but become difficult to construct for large data sets.



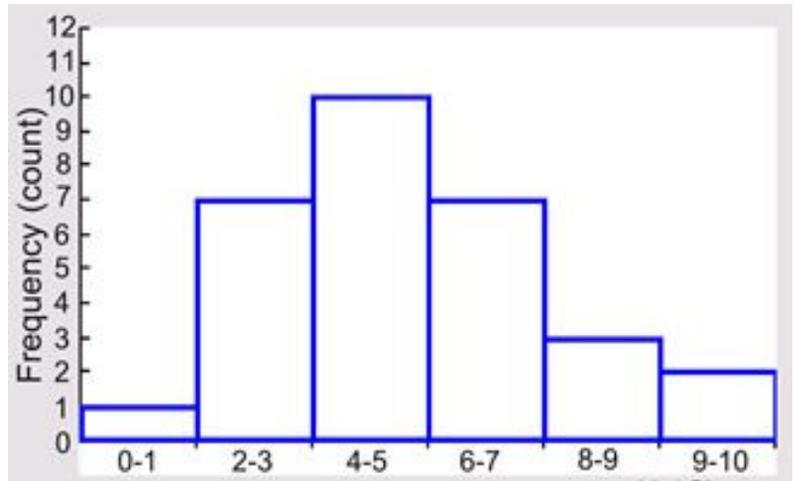
Example of Dot Plot



ORGANIZING DATA

HISTOGRAM

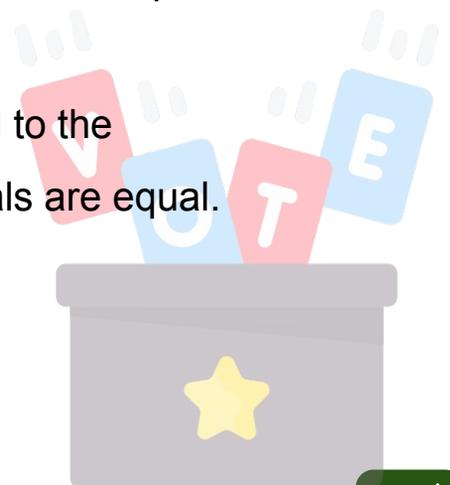
It is a graphical display of data using different heights of bars; this is very similar to a bar graph but there is no space between the bars because it uses the concept of range.



Example of Histogram

Steps in Creating Histogram

1. Mark the class intervals on the X-axis and frequencies on the Y-axis. The scales for both the axes have to be same.
2. Draw the bars with bases as class intervals and corresponding frequencies as heights.
3. A rectangle/bar is built on each class interval since the class limits are marked on the horizontal axis, and the frequencies are indicated on the vertical axis.
4. The height of each rectangle is proportional to the corresponding class frequency if the intervals are equal.



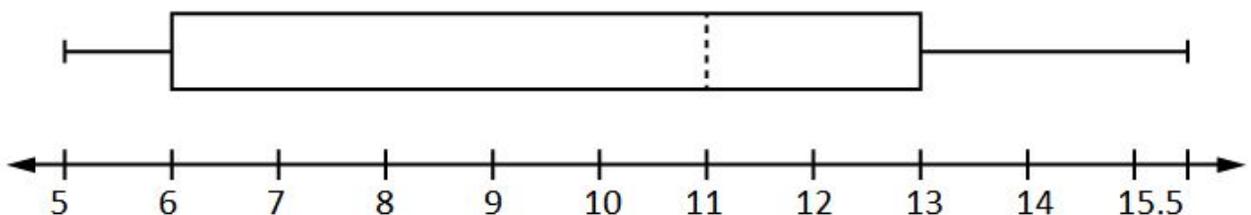
ORGANIZING DATA

BOX PLOTS

- Also called **box-and-whisker plots** or **box-whisker plots**.
- Provide a good graphical image of the concentration of the data.
- They also show how far the extreme values are from most of the data.
- A box plot is constructed from five values: the minimum value, the first quartile, the median, the third quartile, and the maximum value.

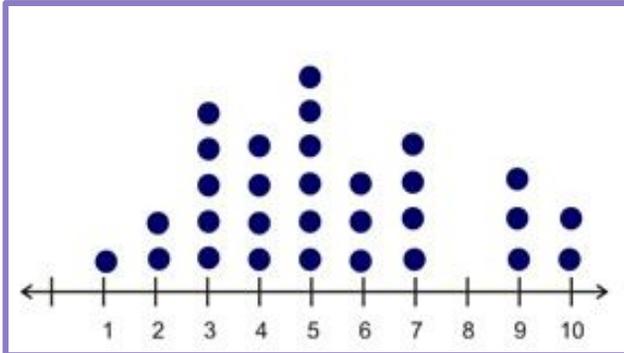
Steps in Creating Box Plots

1. To construct a box plot, use a horizontal or vertical number line and a rectangular box.
2. The smallest and largest data values label the endpoints of the axis.
3. The first quartile marks one end of the box and the third quartile marks the other end of the box. Approximately **the middle 50 percent of the data fall inside the box**. The “whiskers” extend from the ends of the box to the smallest and largest data values.
4. The median or second quartile can be between the first and third quartiles, or it can be one, or the other, or both.



INTERPRETING DATA

Using Dot Plots



1. What are the minimum and maximum values of the distribution?
Answer: 1 and 10
2. What value/score is the most occurring?
Answer: 5, because it has a frequency of 6.

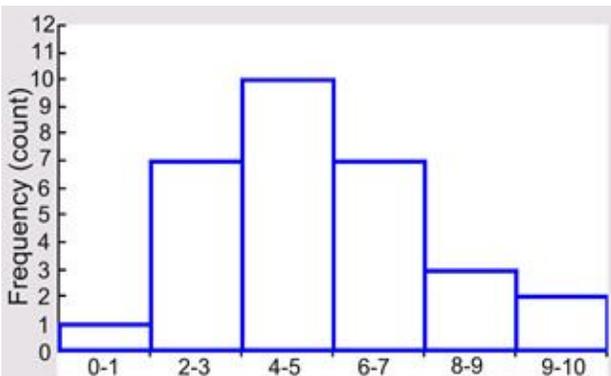
Answer: 5, because it has a frequency of 6.



It's your turn...

1. Which score has 0 frequency? **Answer:** _____
2. How many values/scores are there in all? **Answer:** _____
3. Which scores have the same frequency? **Answer:** _____
4. What are the top three scores with the most number of occurrence?
Answer: _____

Using Histogram



1. How many class intervals are there?
Answer: 6
2. What value/score is the most occurring?
Answer: the values from 4-5.

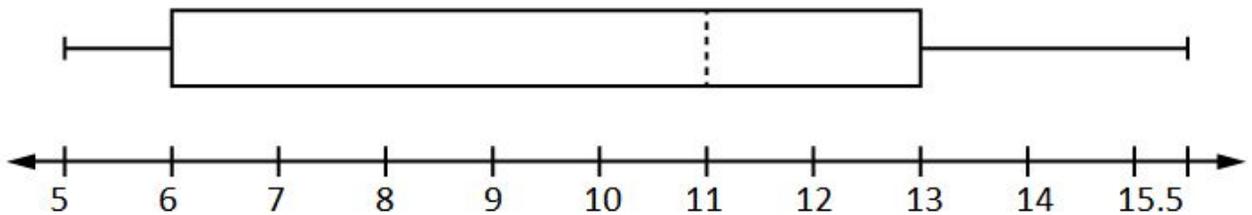


INTERPRETING DATA

It's your turn...

1. Which score has 0 frequency? **Answer:** _____
2. How many values/scores are there in all? **Answer:** _____
3. Which scores have the same frequency? **Answer:** _____
4. What are the top three scores with the most number of occurrence?
Answer: _____

Using Box Plots



1. What are the extreme values?
Answer: 5 and 15.5
2. What value/score is the most occurring?
Answer: the values from 6-13.



It's your turn...

1. What is the value of the median? **Answer:** _____
2. What is the value of the first quartile? **Answer:** _____
3. What is the value of the second quartile? **Answer:** _____



TABLE OF ACTIVITIES

1. The Voters' Feedback
2. City Poll
3. Votime Time
4. Election Day
5. The Candidates
6. Politicians' Ranking
7. The Survey Says
8. Political Supporters
9. Cast Your Vote
10. And the Winner Is...



THE VOTERS' FEEDBACK

The election day is near! Let us hear the people's voice. Write approve if the statement is TRUE otherwise, change the underlined word to make the statement correct.

_____ 1.

Dot plot is a graphical display of the data using dots in here, each box represents a unit of data

_____ 2.

Histogram is a bar graph that uses no space between the bars because it utilizes the concept of range.

_____ 3.

In histogram, mark the class limits on the X-axis and frequencies on the Y-axis.

_____ 4.

Box plots are also known as box-whisker plots.

_____ 5.

In creating box plots, the smallest and largest data values label the endpoints of the axis.



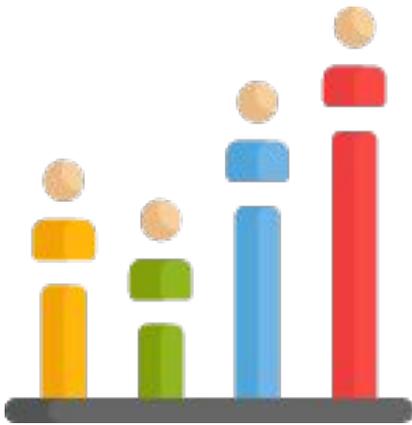
Bonus item: Who was the first president/leader of your country?

Answer:



CITY POLL

Represent the result of the collected data from the city poll using dot plots. Use the space below in constructing your dot plot.



City Poll's Results

1	5	2	3	1
4	3	5	5	2
1	4	2	1	2
3	3	5	4	1

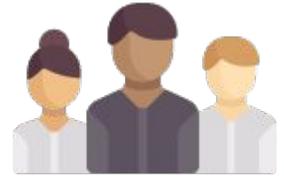
A large empty rectangular box with a purple border, intended for constructing a dot plot. In the bottom right corner of this box, there is an illustration of a hand holding a blue pen, pointing at a yellow square with a white checkmark.

VOTING TIME

Listed below are the number of minutes that these people used in casting their votes. Represent the distribution using histogram.

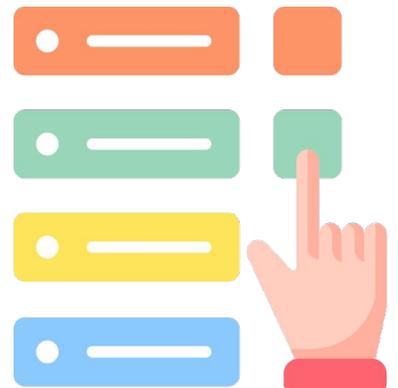


Title of the Histogram:



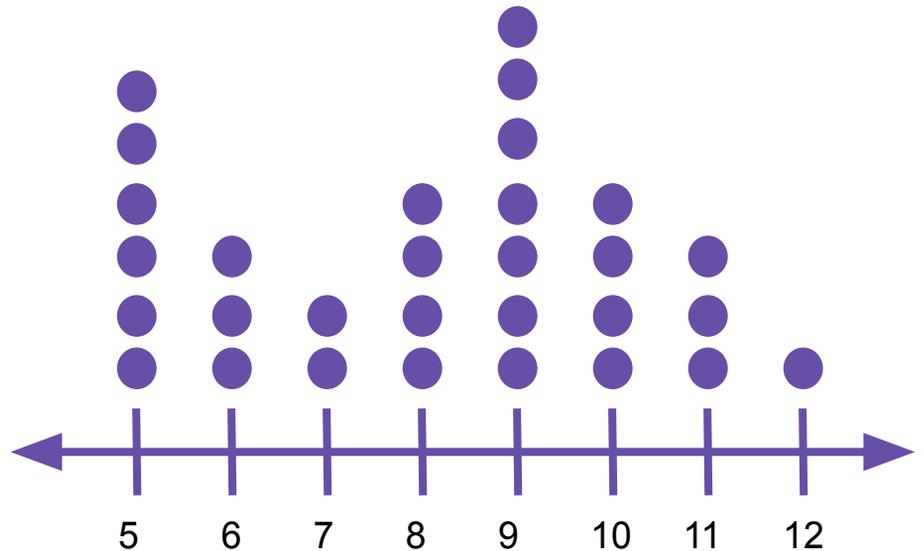
Number of Minutes Spent by the Voters

7	11	8.5	9	9
10.4	14	7	12	8
9.2	11	8	8	13
9	10	14	7	15



ELECTION DAY

Today is E-Day! Exercise your right to vote and make a difference on your country! Can you validate the statements of these people based on the dot plot given? Put a check in the box if they are telling the truth.

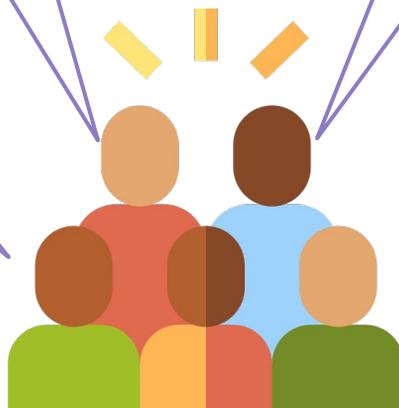


1. There are a total of 30 respondents.

2. There are 15 people whose answers are 5 to 8.

3. The most occurring frequency is 5.

4. The score with the highest frequency is 9.



THE CANDIDATES

These two candidates want to win the hearts of the public! Tell whether the following statements are about dot plots or histogram. Write D if it is a dot plot and H if histogram on the space provided.

1.It shows scatter and grouping of a data from a single characteristics using discs.

2.This statistical display use rectangles to represent and organize the collected data.

3.This contains plot height of the dots that indicates how often the corresponding value on the horizontal axis was observed.

4.This type of display is more ideal when dealing with small amount of data rather than the large ones.

5.This display aims to look for repeated numbers in the data or the mode of the data

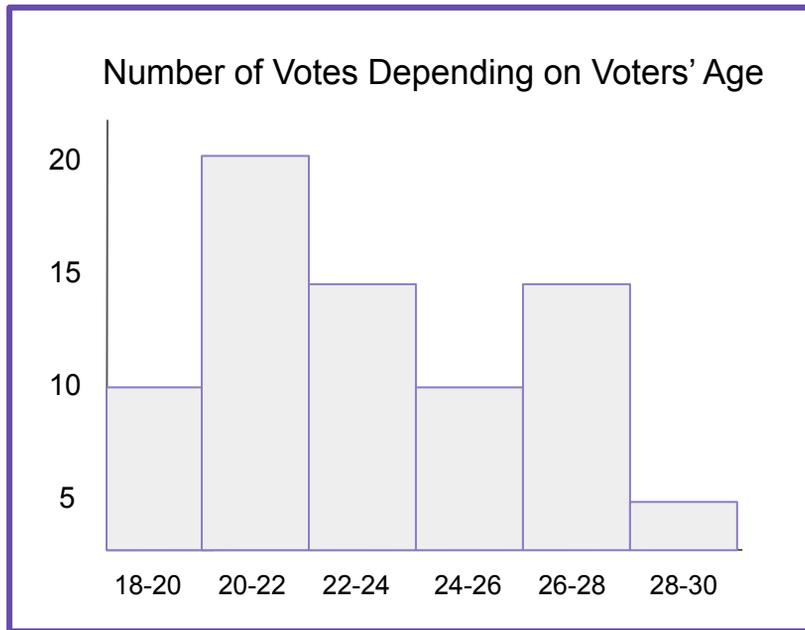
6.This is a wonderful tool to see if the data clusters around a range of numbers

7.This projects range/intervals of the values of a given set of data.



POLITICIANS' RANKING

This is so exciting! The ranking of politicians are out based on the age of the public voters! Interpret the result using the given histogram then answer the questions that follow.



1. How many voters belong to the youngest age group? _____
2. How many voters belong to the oldest age group? _____
3. Which age group has the highest frequency? _____
4. Which age groups have the same number of frequency? _____
5. How many class intervals does the given histogram have? _____
6. Arrange the class intervals in increasing order depending on its frequency.

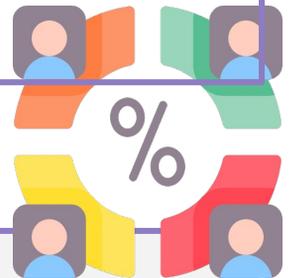


THE SURVEY SAYS

What does the survey say? Represent the result by constructing a box plot. Make sure to follow the important details in order to do it.

1. Box plot details:

- The lowest value is 10 and the highest is 20
- The first quartile is 13, the median is 17, and the third quartile is 18.5.



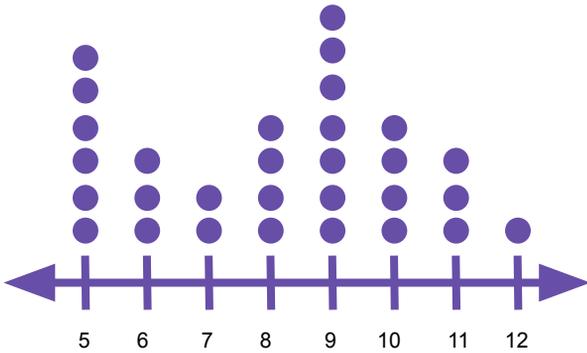
2. Box plot details:

- The lowest value is 18 and the highest is 28
- The first quartile is 19, the median is 22, and the third quartile is 25.

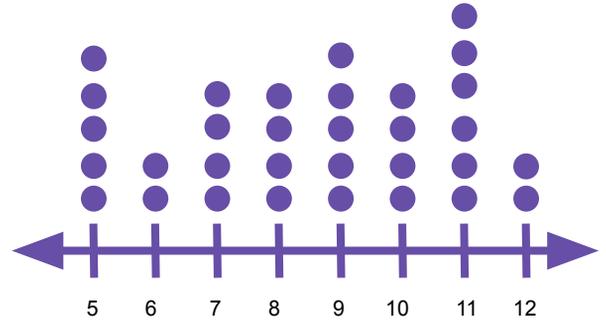


POLITICAL SUPPORTERS

These opposing political supporters are persistent that their candidate has won the election. Compare the two dot plots and determine who really wins!



A



B

1. Do the two dot plots have the same total frequency? Justify your answer. _____
2. What scores have the highest frequency on both plots?

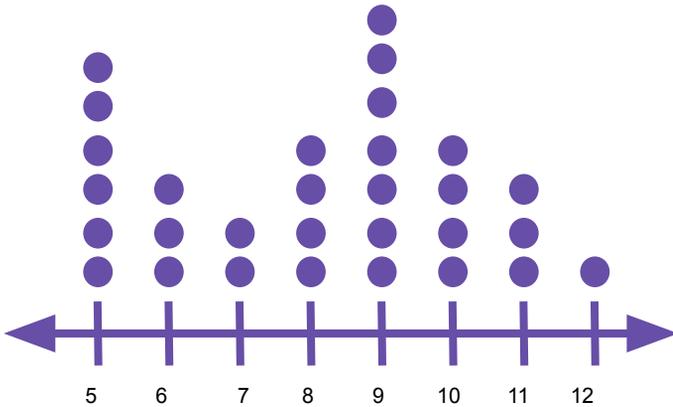
3. Which scores have the same frequency on both plots?

4. What is their total frequency? _____
5. Who is the candidate who won the election? _____



CAST YOUR VOTE

It's time to cast your vote on this historic day! Use the information from the dot plot to create its corresponding box plot. Make sure to indicate the label of your work.



Box Plot details:

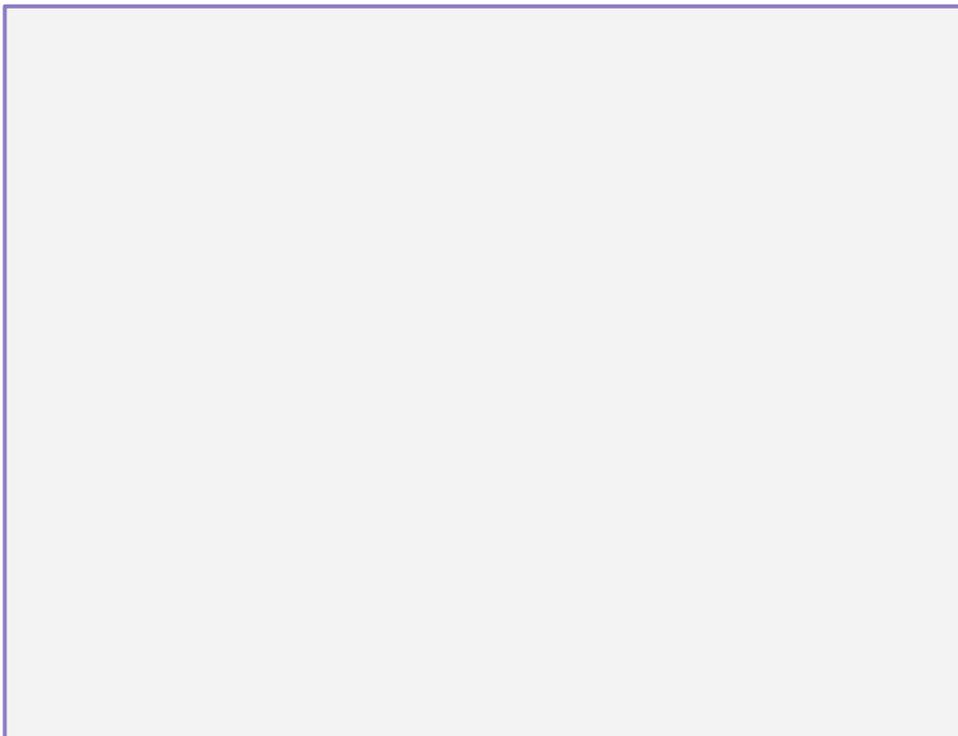
- Lowest value: _____
- Highest value: _____
- First Quartile: _____
- Second Quartile: _____
- Third Quartile: _____



AND THE WINNER IS...

Here is the list of most popular women political leaders in the world. Make a research on the number of votes that they received during their election journey. Create a simple statistical display based on your gathered data.

Political Leader	Country of Origin
Angela Merkel	Germany
Kolinda Grabar-Kitarović	Croatia
Ellen Johnson Sirleaf	Liberia
Benazir Bhutto	Pakistan
Sonia Gandhi	India

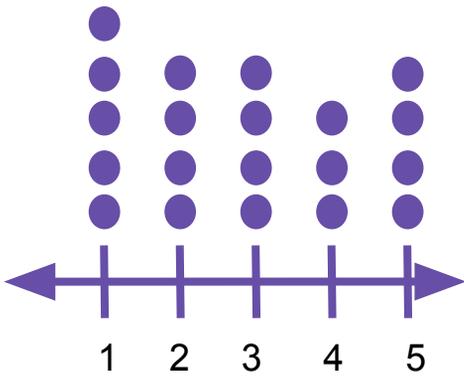


ANSWER GUIDE

Activity 1

1. Dot 2. True 3. True 4. True 5. True

Activity 2

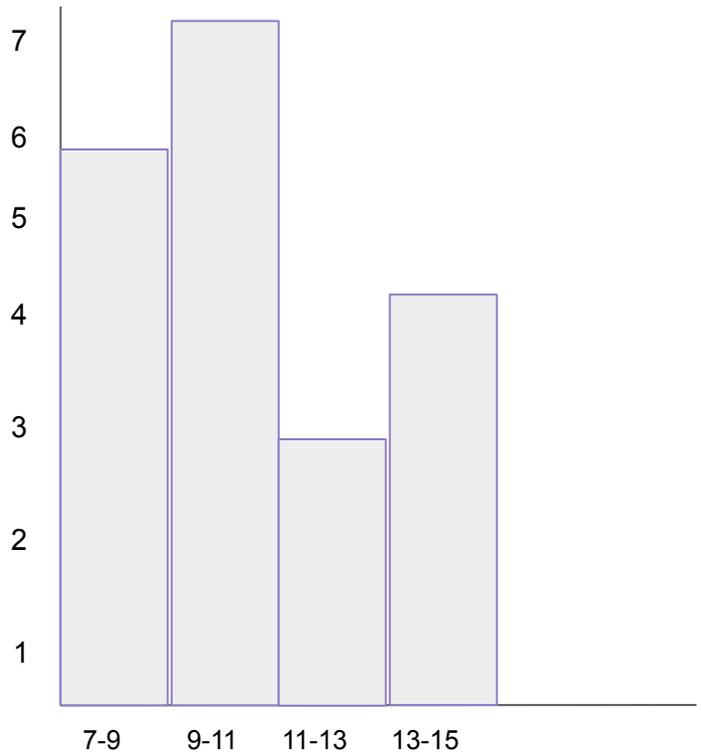


Activity 4

1. Check
2. Check
3.
4. Check

Activity 3

Number of Minutes Spent by the Voters



Activity 5

1. D 2. H 3. D 4. D 5. D 6. H 7. H

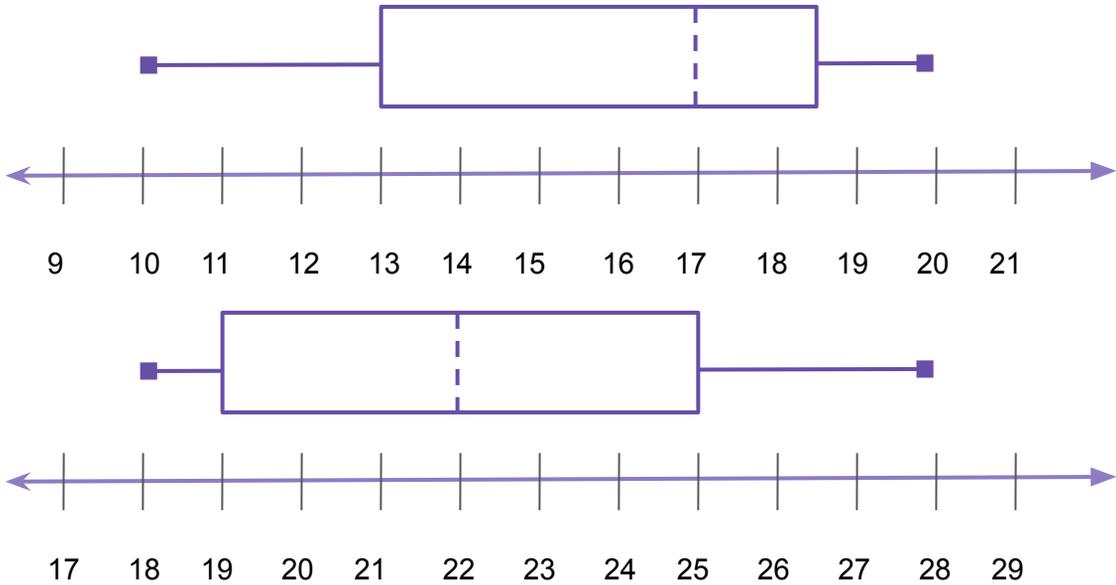
Activity 6

1. 10 2. 5 3. 20-22 4. 22-24, 26-28 5. 6
6. 28-30, 18-20, 24-26, 22-24, 26-28, 20-22



ANSWER GUIDE

Activity 7

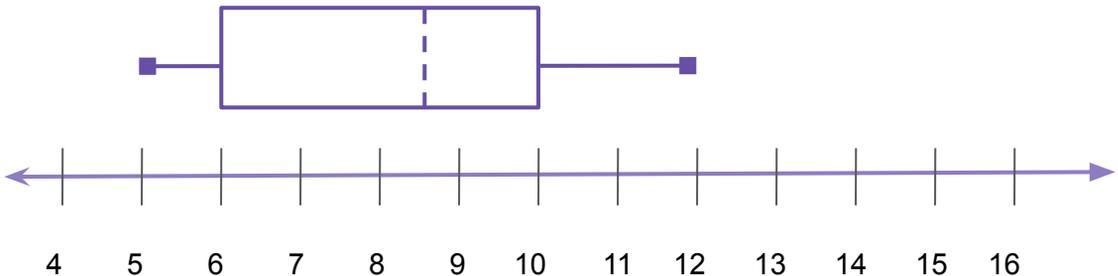


Activity 8

1. No, A has 30 while B has 32
2. 9, 11
3. 8 and 10
4. 62
5. Candidate B

Activity 9

1. LV = 5, HV = 12, Q1 = 6, Q2 = 8.5, Q3 = 10.



Activity 10 : Answers may vary.



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