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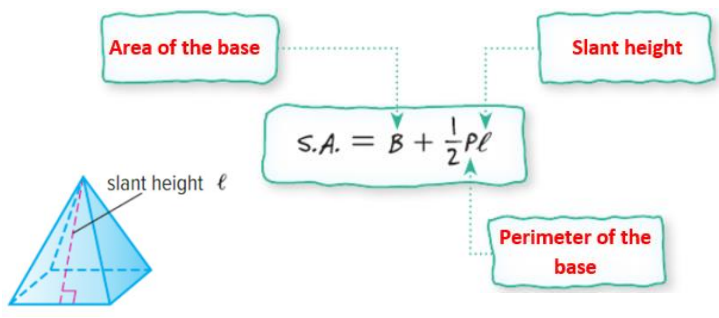
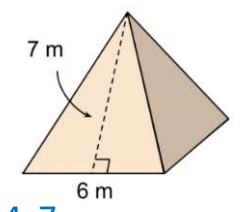
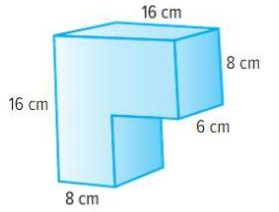
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\* لتحميل كتب جميع المواد في جميع الفصول للـ الصف السادس اضغط هنا

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Lesson	Formula	Example
<p>Surface area of <b>pyramids</b></p>	 <p style="text-align: center;"><math>S.A. = B + \frac{1}{2}Pl</math></p>	<p><b>Square pyramid</b></p> $B = 6 \times 6 = 16$ $P = 6 + 6 + 6 + 6 = 24$ $L = 7$  $S.A. = 16 + 0.5 \times 24 \times 7$ $= 16 + 84$ $= 100$
<p>Volume and Surface Area of <b>composite figures</b></p>	<p>Volume of Rectangular Prisms = <math>l \times w \times h</math></p> <p>Volume of Triangular Prism = <math>\frac{b \times h \times h}{2}</math></p> <p>Volume of rectangle Pyramid = <math>\frac{b \times h \times h}{3}</math></p> <p>Volume of triangle Pyramid = <math>\frac{b \times h \times h}{6}</math></p>	 <p>Find the volume of the composite figure.</p> $V1 = 16 \times 8 \times 6 = 768$ $V2 = 8 \times 6 \times 8 = 384$ $V = 768 + 384 = 1152$
<p><b>Mean</b></p>	$\text{Mean} = \frac{\text{sum of the data}}{\text{number of pieces of data}}$ <p><b>Missing value =</b></p> <p>(Number of value <math>\times</math> mean) – Sum of the data</p>	<p>Find the <b>mean</b> for the data.</p> <p style="text-align: center;">3, 5, 5, 1, 7, 3</p> $\text{Mean} = \frac{3+5+5+1+7+3}{6} = 4$ <p>A student was asked to find the mean of the numbers 23, 29, 17, 16 and x. He found the mean to be 22. What should be the number in place of x.</p> $x = (5 \times 22) - 85 = 25$
<p><b>Median and Mode</b></p>	<p>The <b>median</b> of a list of values is the value appearing at the <b>center</b> of a sorted version of the list.</p> <p style="text-align: center;">ترتيب الأرقام ثم إيجاد الرقم الذي يقع في الوسط</p> <p>The <b>mode</b> is the number or numbers that occur <b>most</b> often.</p> <p style="text-align: center;">الرقم الأكثر تكرارا</p>	<p>Find the median and mode for the set of data.</p> <p style="text-align: center;">10, 7, 3, 5, 10, 9, 8</p> <p style="text-align: center;">3, 5, 7, 8, 9, 10, 10</p> <p><b>Median = 8</b></p> <p><b>Mode = 10</b></p>

## Measures of Variation

{18, 44, 47, 55, 61, 62, 78, 79, 83, 145}

↑ smallest number
↑ Q<sub>1</sub>
↑ median
↑ Q<sub>3</sub>
↑ largest number

Measure of Variation	Definition	Example From the Data Set
range	the difference between the largest and the smallest terms in a data set	145 – 18 = 127
median	the number in the center of a data set	61.5
quartile	used to break data up into quarters	first quartile: 47 second quartile: 79
interquartile range	the difference between the third and first quartiles	79 – 47 = 32
outliers	data points that lie outside of most the other data points in the set	18 or 145

### Measures of Variation

Find the measures of variation for the set of data.  
10, 7, 3, 5, 10, 9, 8

3, 5, 7, 8, 9, 10, 10

Range = Largest n. – Smallest n.  
= 10 – 3 = 7

Median = 8

Q<sub>1</sub> = 5 , Q<sub>3</sub> = 10

IQR = Q<sub>3</sub> – Q<sub>1</sub>

IQR = 10 – 5 = 5

Outlier: No outlier

### Mean Absolute Deviation

**MAD**

Student Ages

Value	Deviation  value - mean
11	11 - 13  =  -2  = 2
11	11 - 13  =  -2  = 2
17	17 - 13  =  4  = 4

$$\frac{\text{sum of deviations}}{\# \text{ of numbers}} = \frac{2 + 2 + 4}{3} = \frac{8}{3} = 2\frac{2}{3}$$

MAD = 2 $\frac{2}{3}$

Find mean absolute deviation of the data.  
5, 7, 10, 2

**Step1:** mean =  $\frac{5+7+10+2}{4} = 6$

**Step2:** deviation |5 - 6| = 1  
|7 - 6| = 1, |10 - 6| = 4, |2 - 6| = 4

**Step3:** MAD =  $\frac{1+1+4+4}{4} = 2.5$

### Appropriate Measures

Measure	Most appropriate when...
mean	• the data have <b>no extreme</b> values.
median	• the data <b>have extreme</b> values. • there are <b>no big gaps</b> in the middle of the data.
mode	• data have <b>many repeated</b> numbers.

2, 3, 5, 8, 8

The measures of center that best describe this data are the **Mean**

5, 16, 17, 19, 19

The measures of center that best describe this data are the **Median**

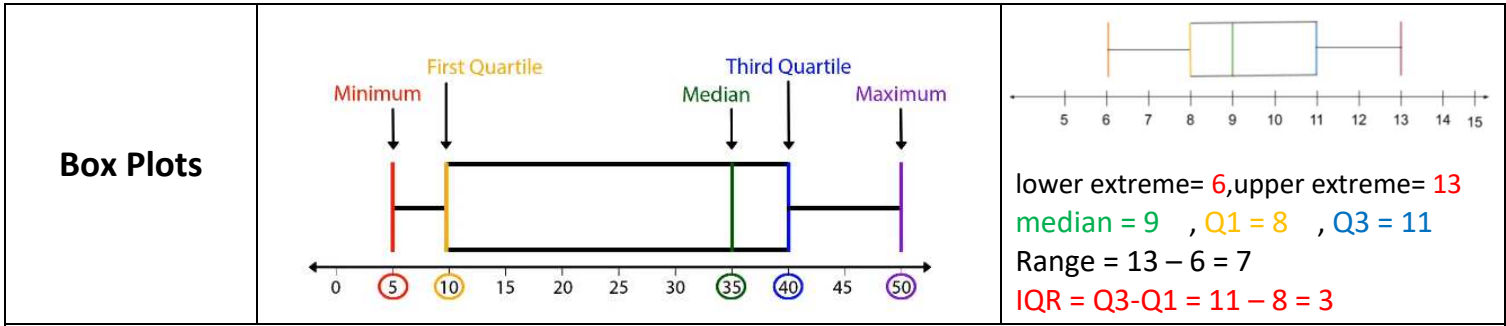
10, 12, 12, 12, 15

The measures of center that best describe this data are the **Mode and median**

### Histograms

Books Sold

- 10 books were between AED **30-39**
- How many books cost between AED 50 - 59? **16 books**
- How many books cost less than AED 40? **12 + 10 = 22 books**
- Most of the books cost between AED **60 - 69**



### Shape of Data Distributions

**متماثل symmetry:** The left side of the distribution looks like the right side.

**تجمع cluster:** Data that are grouped closely together.

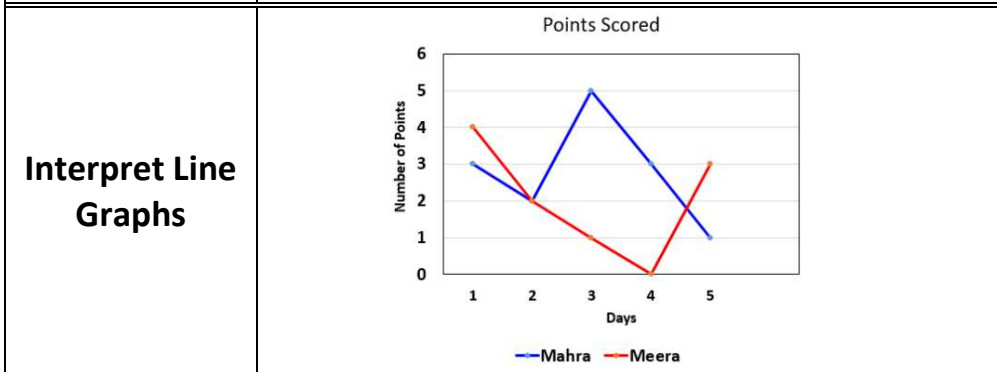
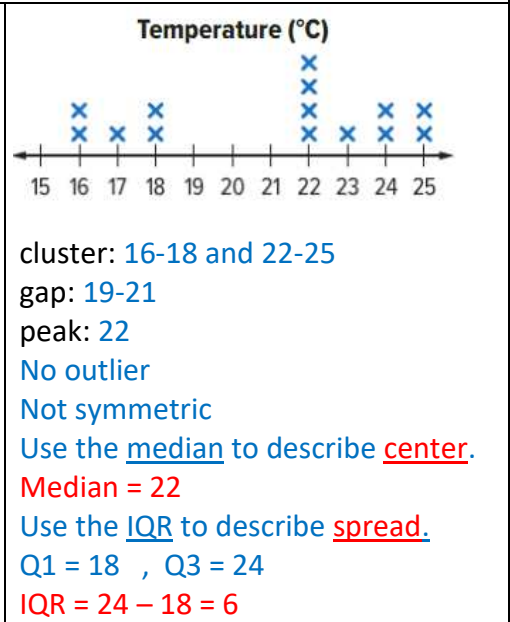
**فجوة gap:** The numbers that have no data value.

**قمة peak:** The most frequently occurring values or mode.

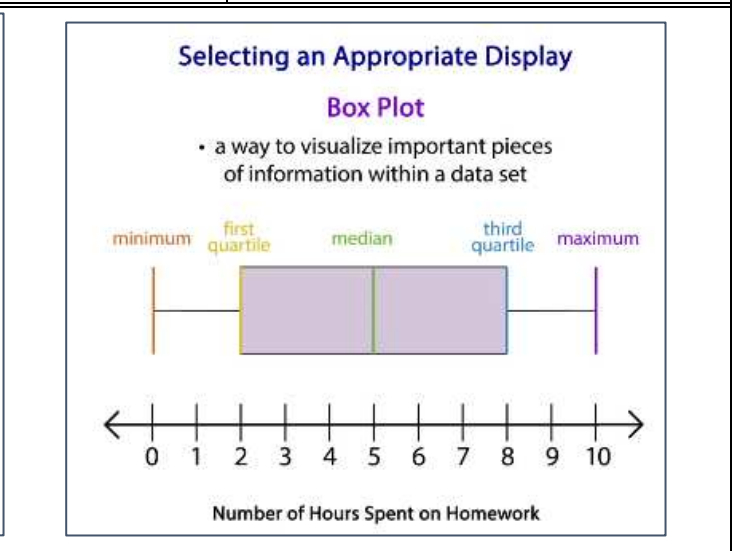
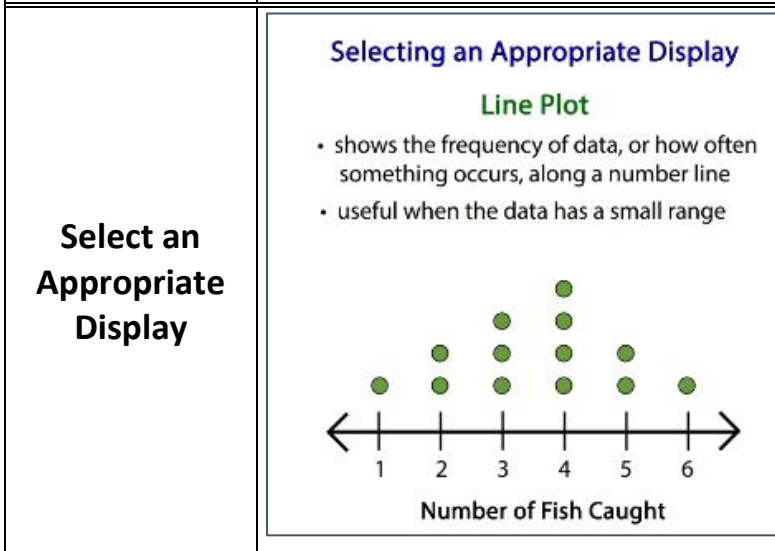
Is the data distribution symmetric?

**Yes**  
 Use the **mean** to describe the center. Use the **mean absolute deviation** to describe the spread.

**No**  
 Use the **median** to describe the center. Use the **interquartile range** to describe the spread.



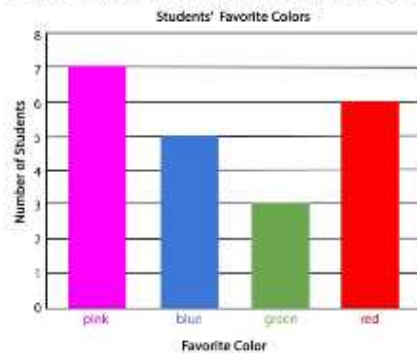
Day	Mahra	Meera
1	3	4
2	2	2
3	5	1
4	3	0
5	1	3



## Selecting an Appropriate Display

### Bar Graph

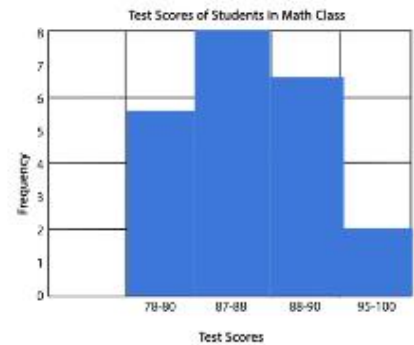
- shows the frequency of data
- bars are used to represent the data
- useful when data can be separated into categories



## Selecting an Appropriate Display

### Histogram

- a graph that groups data into intervals
- useful when the data has a large range or a large number of data points



## Selecting an Appropriate Display

### Line Graph

- a graph that displays a set of data points with straight line segments
- used to show a change in a data set over time

