Cosmo School

Class-5

Subject-Mathematics

Chapter-13 (Data Arrangement)

Date: 29/10/2020

Lecture- 02

Histogram: A histogram is a graphical representation of the distribution of data.

How to draw a histogram:

1) On the horizontal axis, put class interval according to the table.

2) On the vertical axis, mark the number so that all the numbers come in the graph.

3) Draw rectangles whose width is the class interval and height is the number.

4) Note that,

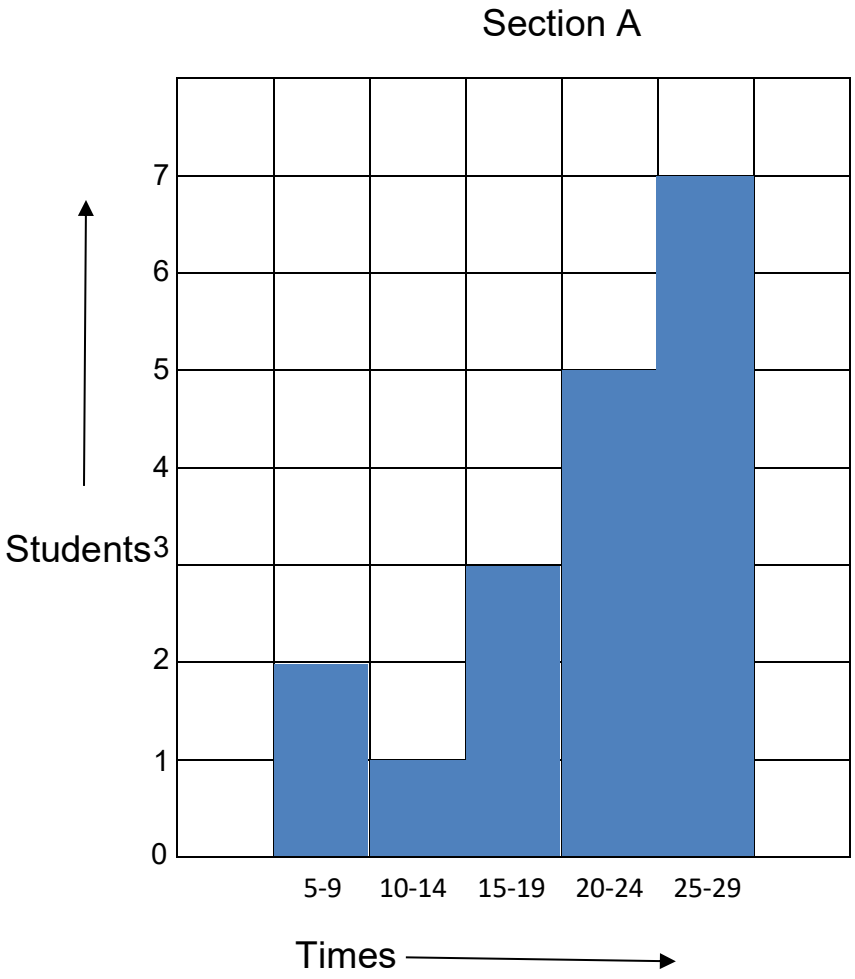
These rectangles are drawn without gaps in between.

Example – 1: Draw a histogram to express the information in the table for the times that Section A students submitted homework.

Section A

Class Interval to submit homework	Number
5 – 9	2
10 – 14	1
15 – 19	3
20 – 24	5
25 – 29	7
Total	18

Solution: A histogram of the data presented in the table relating to submitting homework of the students of section A is drawn below:



Example – 2: The following data shows the height of grade 5 students in one school. Prepare the table in 3 different class intervals as shown below, and draw a histogram for each table.

Height of students (in centimetres)

130, 132, 134, 128, 121, 123, 138, 124, 134, 139, 122, 124, 126, 128, 123, 126, 130, 131, 137, 135, 121, 125, 131, 134, 133, 141, 129, 133, 126, 128

Table 1

Height Interval	Number
120 - 123	
124 – 126	
127 – 129	
130 – 132	
133 – 135	
136 – 138	
139 – 141	
Total	

Table 2

Height Interval	Number
120 – 124	
125 – 129	
130 – 134	
135 – 139	
140 – 144	
Total	

Table 3

Height Interval	Number
120 – 129	
130 – 139	
140 – 149	
Total	

Solution: The given data are arranged in ascending order: 121, 121, 122, 123, 123, 124, 124, 125, 126, 126, 126, 128, 128, 128, 129, 130, 130, 131, 131, 132, 133, 133, 134, 134, 134, 135, 137, 138, 139, 141

Table 1

Height Interval	Number
120 - 123	5
124 – 126	6
127 – 129	4
130 – 132	5
133 – 135	6
136 – 138	2
139 – 141	2
Total	30

A histogram of the data presented in the table 1 is drawn below:

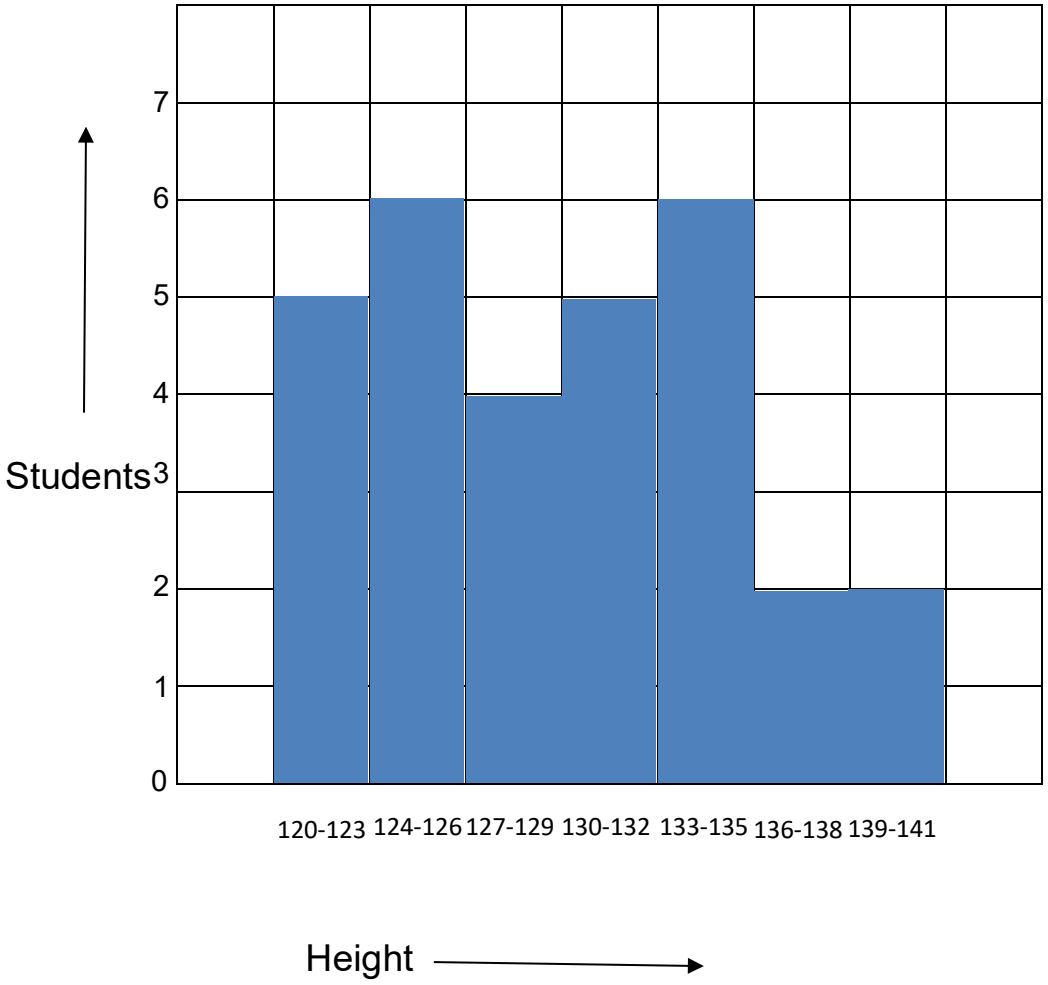


Table 2

Height Interval	Number
120 – 124	8
125 – 129	7
130 – 134	10
135 – 139	4
140 – 144	1
Total	30

A histogram of the data presented in the table 2 is drawn below:

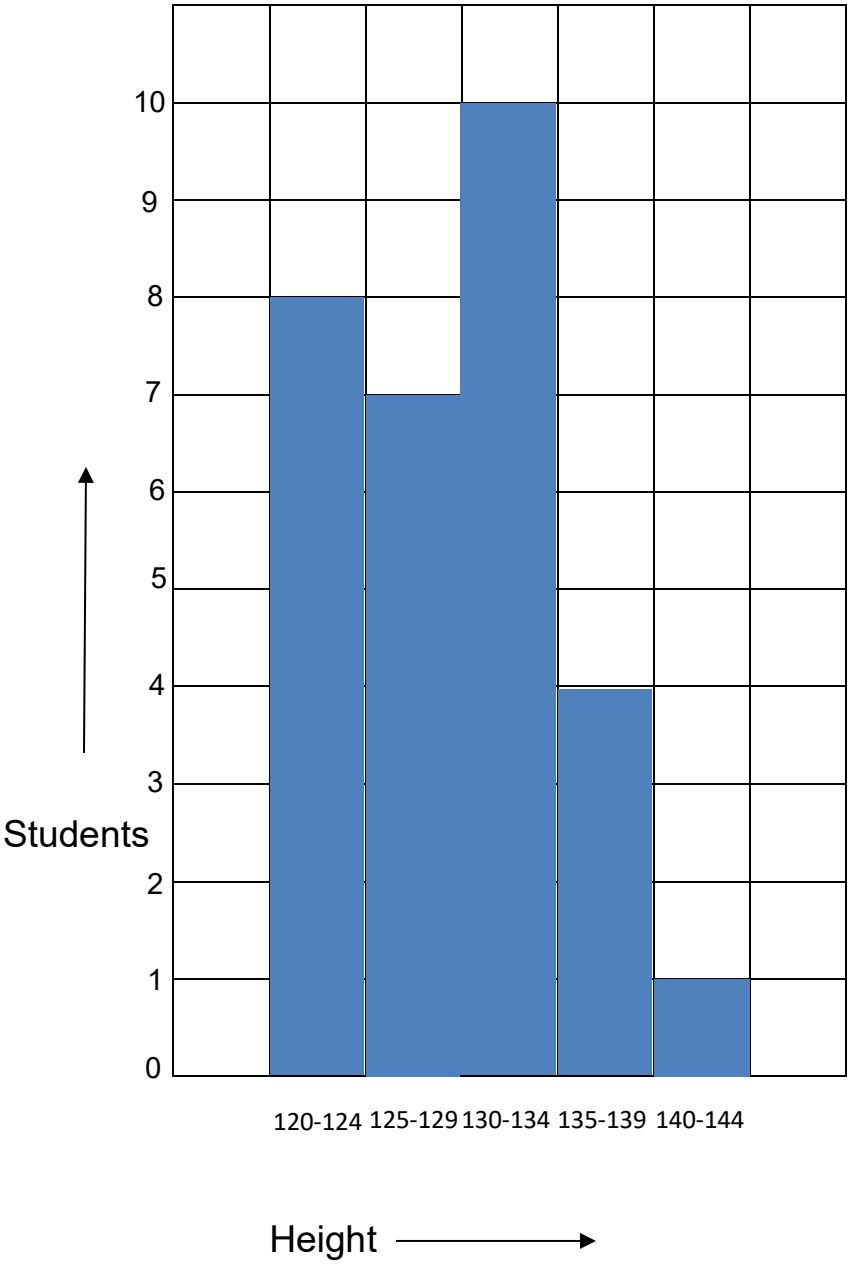
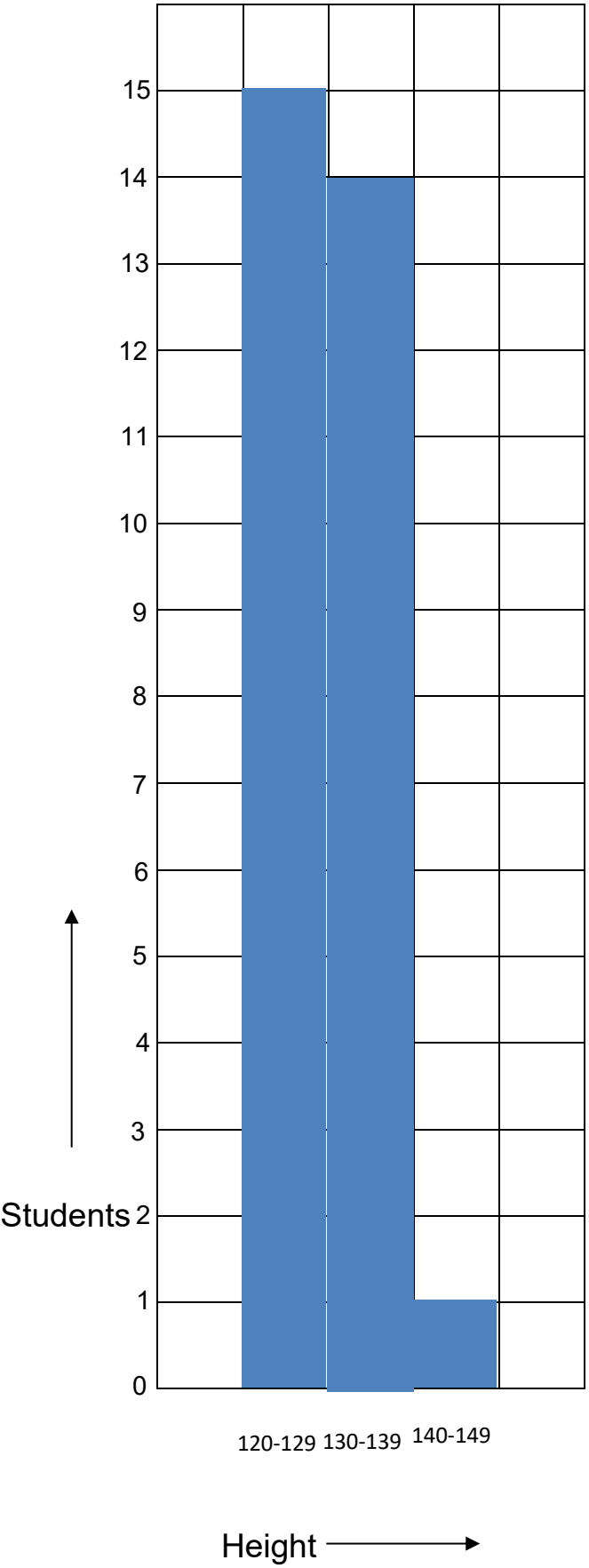


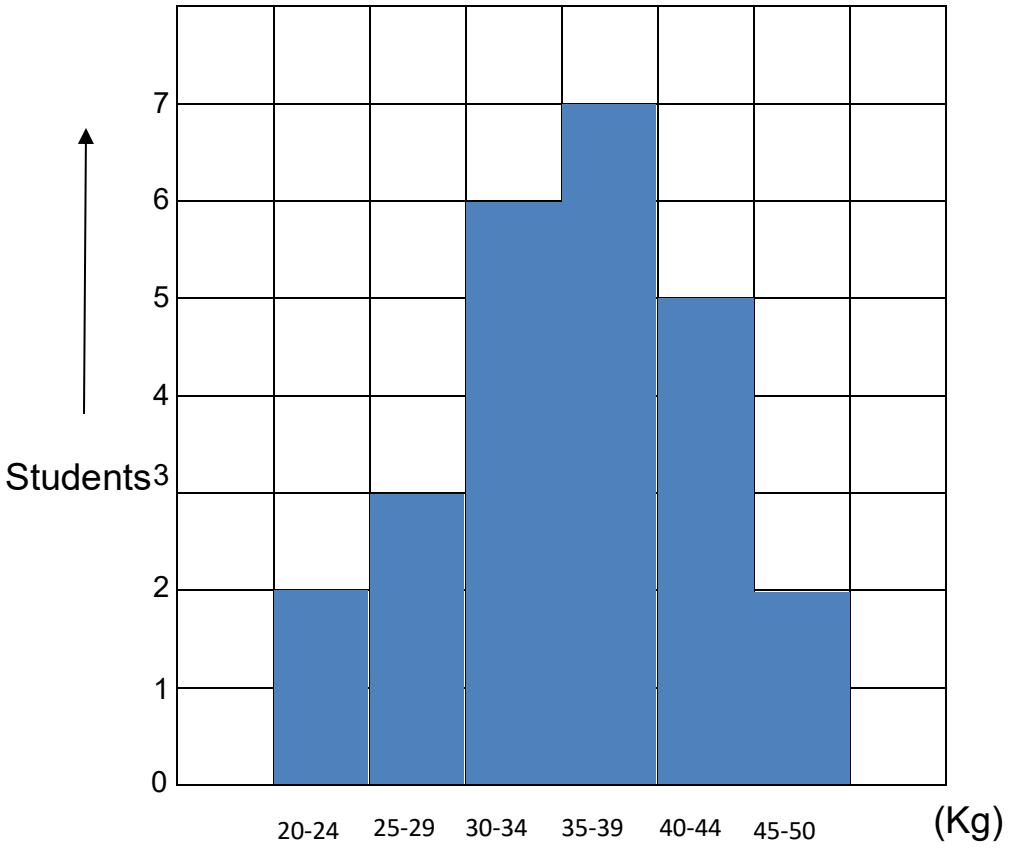
Table 3

Height Interval	Number
120 – 129	15
130 – 139	14
140 – 149	1
Total	30

A histogram of the data presented in the table 3 is drawn below:



Example – 3: The histogram on the below shows the weight of all the Grade 5 students in one school.



Weight of Grade 5 students

a) **How many Grade 5 students are there in this school?**
b) **What class includes more students than others?**
c) **How many percent of students are there in the class 35 – 39?**
d) **How many percent of students are less than or equal to 29 kilograms in weight?**

Solution:

a) There are = 2+3+6+7+5+2 = 25 students of Grade 5 in this school.

Ans: 25 students.

b) The class 35 – 39 includes more students than others.

Ans: 35 – 39.

c) There are 7 students in the class 35 – 39.

Total students = 25

∴ Percent of students in the class 35 – 39 = $\frac{7}{25} \times 100\%$

= 28%

Ans: 28%

d) (2+3) or 5 students are less than or equal to 29 kg in weight.

Total students = 25

∴ The percent of students who are less than or equal to 29 kg in weight

= $\frac{5}{25} \times 100\%$

= 20%

Ans: 20%

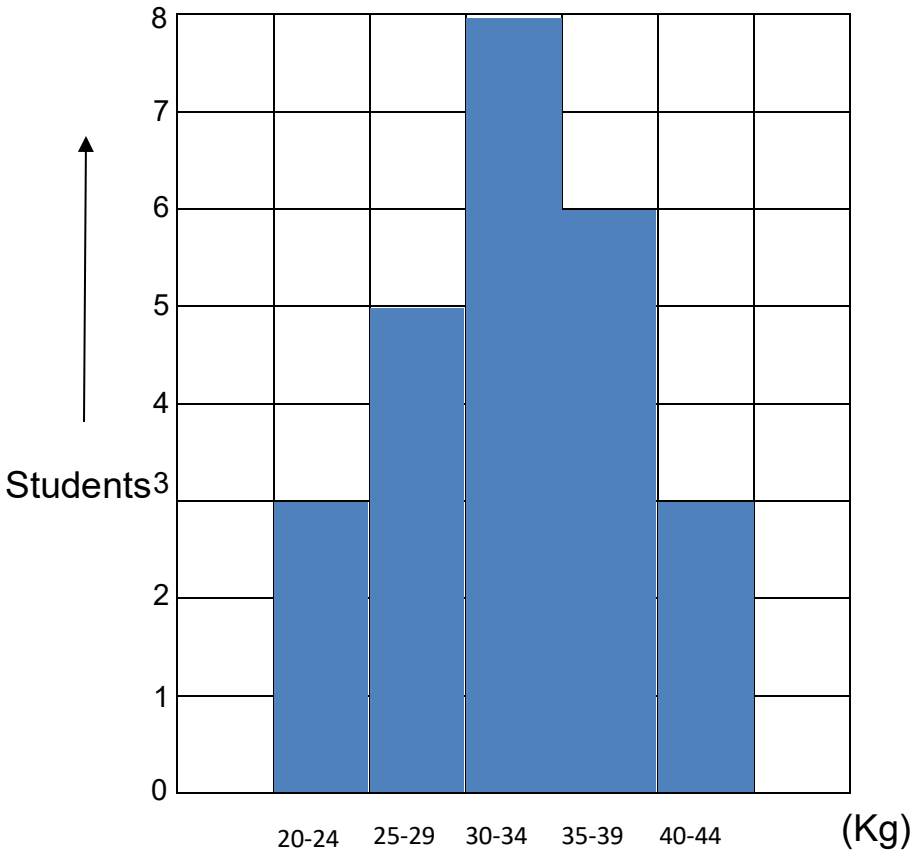
Exercise

1) Draw a histogram to express the information in the table for the times that Section B students submitted homework.

Section B

Class Interval to submit homework	Number
5 – 9	3
10 – 14	5
15 – 19	2
20 – 24	4
25 – 29	6
Total	20

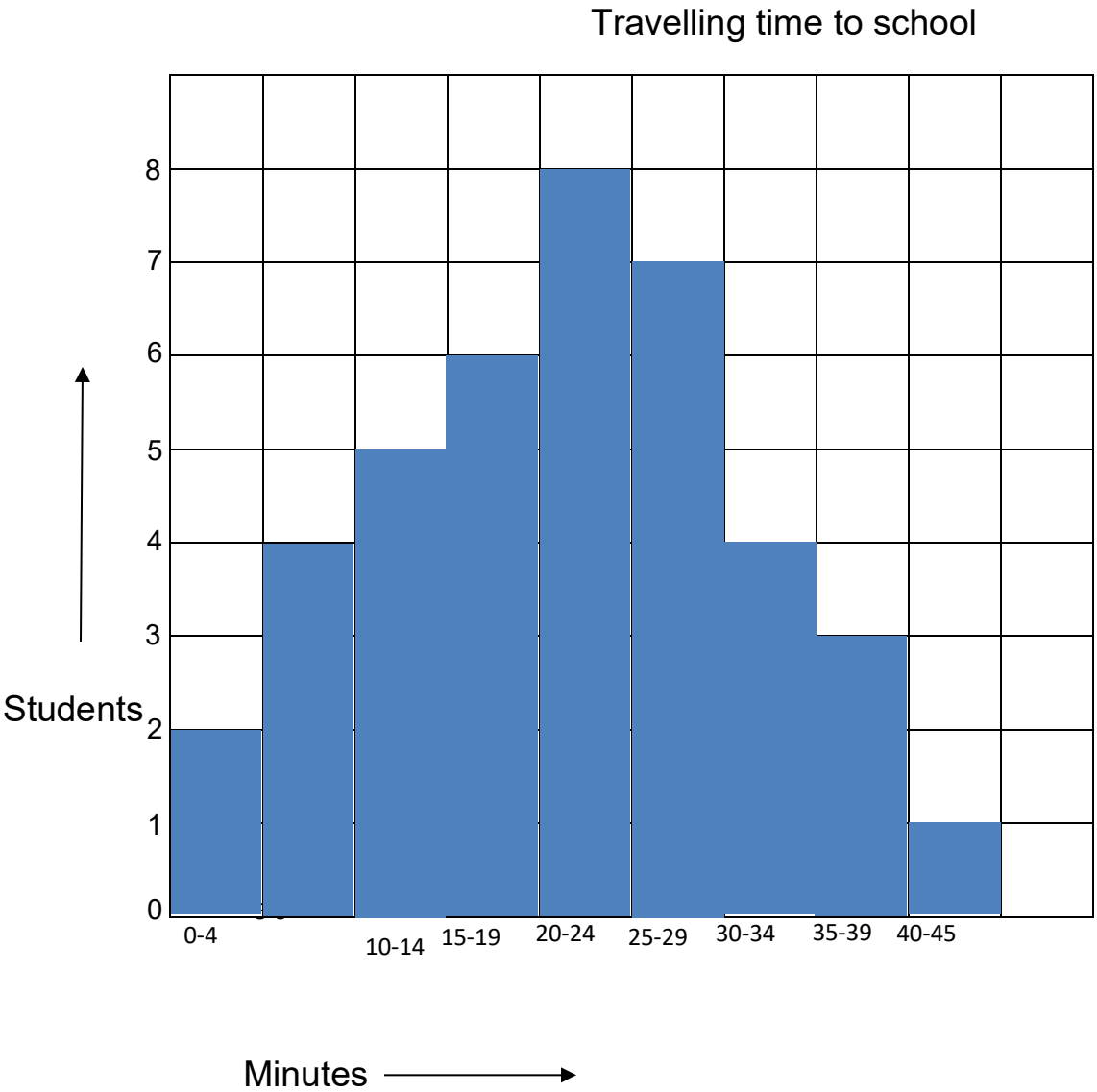
2) The histogram on the below shows the weight of all the Grade 4 students in one school.



Weight of Grade 4 students

e) How many Grade 4 students are there in this school?
f) What class includes more students than others?
g) How many percent of students are there in the class 35 – 39?
h) How many percent of students are less than or equal to 29 kilograms in weight?

3) The histogram below shows the result to survey on how many minutes grade 5 students spend time to travel to school.



a) How many grade 5 students joined the survey?
b) What class includes more students than others?
c) How many present of students spend more than 30 minutes to come to the school?

Prepared by –

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