

Bridging Pack

2

Junior Secondary
**Exploring
Geography**
Third Edition

Sample

Graph drawing


OXFORD
UNIVERSITY PRESS

Contents

Pie chart	1
Simple line graph	
Compound line graph	
Multiple line graph with two y-axes	
Simple bar graph	
Grouped bar graph	
Divided/Stacked bar graph	
Population pyramid	
Climatic graph	6

Graph drawing

Drawing a pie chart



© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a pie chart

Here is an example showing how to draw a pie chart of students' travel pattern to School X by transport mode.

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Number of student
On foot	345
MTR	261
Bus	152
Others	92

1 Find out the total value of all components

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Number of student
On foot	345
MTR	261
Bus	152
Others	92
Total	850

2 Calculate the **percentage of each component**, e.g. $345 \div 850 \times 100\% = 40.6\%$

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Number of student	Percentage share
On foot	345	40.6%
MTR	261	30.7%
Bus	152	17.9%
Others	92	10.8%
Total	850	100%

3 Work out the **degree of each sector**:

Degree of a sector = $360^\circ \times \text{Percentage share}$

The total must be **100%**

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Number of student	Percentage share
On foot	345	40.6%
MTR	261	30.7%
Bus	152	17.9%
Others	92	10.8%
Total	850	100%

For example, the degree of the sector 'on foot' is: $360^\circ \times 40.6\% = 146^\circ$

© Oxford University Press (China) Ltd 2022

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Number of student	Percentage share	Size of sector
On foot	345	40.6%	146°
MTR	261	30.7%	111°
Bus	152	17.9%	64°
Others	92	10.8%	39°
Total	850	100%	360°

Then, draw the sectors of the pie chart based on these degrees

The total must be 360°


© Oxford University Press (China) Ltd 2022

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Percentage share	Size of sector
On foot	40.6%	146°
MTR	30.7%	111°
Bus	17.9%	64°
Others	10.8%	39°
Total	100%	360°

4 Draw a circle and mark a dot at the centre of the circle



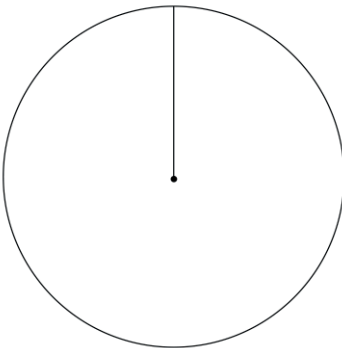
© Oxford University Press (China) Ltd 2022

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Percentage share	Size of sector
On foot	40.6%	146°
MTR	30.7%	111°
Bus	17.9%	64°
Others	10.8%	39°
Total	100%	360°

5 Draw a vertical line up from the dot as the starting line



© Oxford University Press (China) Ltd 2022

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Percentage share	Size of sector
On foot	40.6%	146°
MTR	30.7%	111°
Bus	17.9%	64°
Others	10.8%	39°
Total	100%	360°

6 Align '0°' of a protractor with the straight line

© Oxford University Press (China) Ltd 2022

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Percentage share	Size of sector
On foot	40.6%	146°
MTR	30.7%	111°
Bus	17.9%	64°
Others	10.8%	39°
Total	100%	360°

Draw the first sector (i.e. on foot) in a clockwise direction based on the degree calculated

© Oxford University Press (China) Ltd 2022

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Percentage share	Size of sector
On foot	40.6%	146°
MTR	30.7%	111°
Bus	17.9%	64°
Others	10.8%	39°
Total	100%	360°

Label the sector with its name and percentage value

© Oxford University Press (China) Ltd 2022

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Percentage share	Size of sector
On foot	40.6%	146°
MTR	30.7%	111°
Bus	17.9%	64°
Others	10.8%	39°
Total	100%	360°

7 Draw the remaining sectors in a descending order, i.e. the largest sector first (except sectors with sequential order, e.g. 'primary', 'secondary' and 'tertiary' industry)

© Oxford University Press (China) Ltd 2022

How to draw a pie chart

Students' travel pattern to School X by transport mode

Transport mode	Percentage share	Size of sector
On foot	40.6%	146°
MTR	30.7%	111°
Bus	17.9%	64°
Others	10.8%	39°
Total	100%	360°

8 Give the pie chart a title

Students' travel pattern to School X by transport mode

© Oxford University Press (China) Ltd 2022

Activity

With reference to the table below, draw a pie chart to show the energy use by the residential sector in Hong Kong, 2019.

Energy use	Terajoule (TJ)
Cooking	16,477
Air conditioning	15,867
Hot water	14,036
Office equipment	3,662
Others	10,984

Source: Hong Kong Energy End-use Data 2021

© Oxford University Press (China) Ltd 2022

Graph drawing

Drawing a climatic graph

© Oxford University Press (China) Ltd 2022



Graph drawing

How to draw a climatic graph

Here is an example showing how to draw the climatic graph of Hong Kong.

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

1 On a piece of graph paper, mark the temperature and rainfall scale according to the data range

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

Show temperature on the left y-axis

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

Show rainfall on the right y-axis

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

2 Divide the x-axis into 12 equal parts to show the 12 months of a year

© Oxford University Press (China) Ltd 2022

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

3 Draw a line graph to show the monthly mean temperatures

© Oxford University Press (China) Ltd 2022

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

First, plot the monthly mean temperature at the mid-point of each month

© Oxford University Press (China) Ltd 2022

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

Then, join the points with a smooth line

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

The line should touch the y-axis on the two sides

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

4 Draw bars to show the amount of rainfall in each month

© Oxford University Press (China) Ltd 2022

Graph drawing

How to draw a climatic graph

Climatic data of Hong Kong

Month	Monthly mean temperature (°C)	Rainfall (mm)
Jan	16	25
Feb	17	55
Mar	19	82
Apr	23	175
May	26	305
Jun	28	456
Jul	29	377
Aug	29	432
Sep	28	328
Oct	26	101
Nov	22	38
Dec	18	27

5 Add a title

Climatic graph of Hong Kong

© Oxford University Press (China) Ltd 2022

Graph drawing

Activity

With reference to the table below, draw a climatic graph of Tokyo, Japan.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Monthly mean temperature (°C)	4	5	9	13	18	22	25	27	23	18	12	7
Rainfall (mm)	68	70	111	115	132	161	144	120	195	207	99	60

Source: climate-data.org

© Oxford University Press (China) Ltd 2022