Describing a graph

COMMUNICATION

LEVEL	NUMBER	LANGUAGE
Intermediate	B2_2027X_EN	English

Goals

- Can identify and describe the main elements of a graph..
- Can use a diagram or a graph and explain population growth in cities in detail.

Graphs are pictures that show you how one thing changes in relation to another. Learning to read graphs properly helps **interpreting** pieces of information that go together.

Do you know how to read graphs?

Preview

- In this lesson, you will practise **describing** and **reading a graph**.

These **bars** on the **graph** show the difference between the average market share values of three different companies.

Warm-up

People say, *a picture is worth a thousand words*.

What does it mean?

Do you remember these words?

chart

perspective

diagram

interpretation

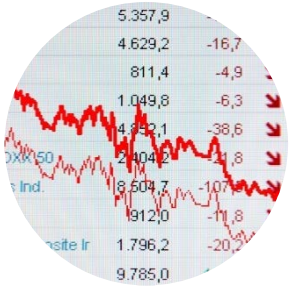
outline

clarification

reasoning

quantity

Do you remember these words?



This **chart** is simply a representation of stock prices over the course of the past year.

This flow **diagram** shows the steps it takes to manufacture one unit.

An **outline** of your basic duties will be provided on your first day.

Gaining an outside or different **perspective** is useful in seeing the bigger picture.

Do you remember these words?

His **reasoning** for the decision followed a logical and rational analysis.

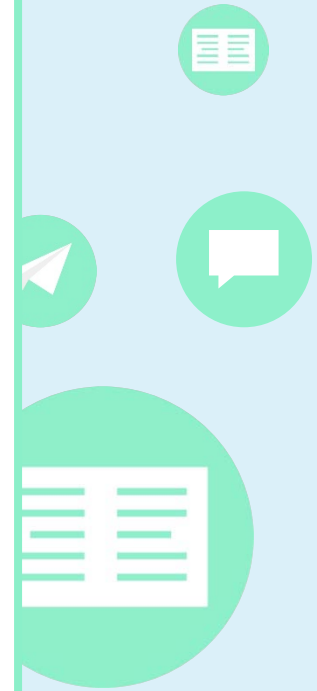
The film didn't have a definitive ending, it was up to the viewers' **interpretation** to create their own.

The **quantity** of luxury goods was artificially limited in order to increase the price.

After reading the contract, please let us know if you require further **clarification** before signing the agreement.

Context clues

1. The accounting department will provide a breakdown of the spending for the year in weekly categories.
2. Please tune into frequency 96.5 on your walkie-talkie for communication.
3. This document will require translation as I cannot understand any French.
4. We should dissect the issue by approaching it step by step and methodically.
5. This case is a rather peculiar one and requires a deeper investigation.



Read the sentences carefully and use the context clues to find out the definition of the underlined words.

Practise your vocabulary

This exercise is to check your understanding of the vocabulary we have covered on the previous slides.

Answer the questions below.

1. Do you know the process of food **breakdown** in your body?
2. What is one way to broaden your **perspectives**?
3. What would be your **reasoning** behind skipping a class?
4. How do you **interpret** your date's silence at a dinner table?
5. **Clarify** what you consider to be your most important value.

Answer the questions

Are graphs and charts also pictures?

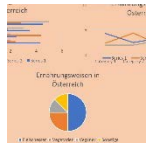
When do you use graphs and charts?

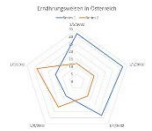
How do you interpret data from a graph?

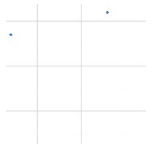
What types of graphs or charts do you know?

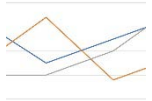
Different types of charts and diagrams

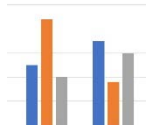
diagram / graph	A **diagram** or **graph** is the graphical representation of data; there are many different types of **diagrams** and **graphs**.
network diagram	A **network diagram** is used to display larger data series.
scatter diagram	A **scatter diagram** is a graph which represents amounts or numbers. Sometimes a line joins each point.
line graph	If you connect the value of a scatter diagram, you get a **line graph**; if you also fill in the area between line and axis, you would get an area plot.
bar chart	The data in **bar charts** are displayed in rectangular bars which are usually vertical. They can also come in a **horizontal** format.
pie chart	A **pie chart** shows how a total value is divided. It is divided from its centre and is always in a circular form.







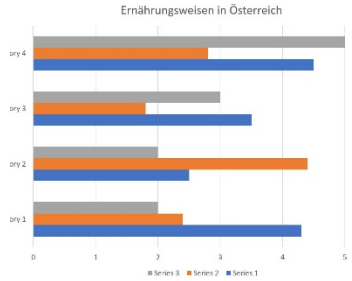




Match the name to the diagram

1. scatter diagram
2. line graph
3. bar chart
4. horizontal bar chart
5. pie chart
6. network diagram

A



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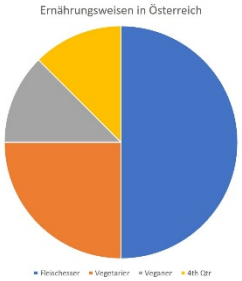

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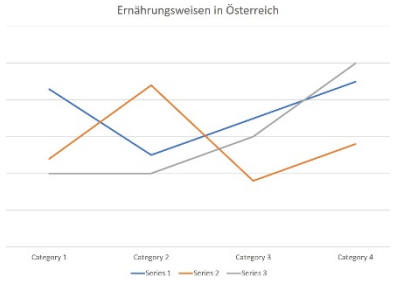

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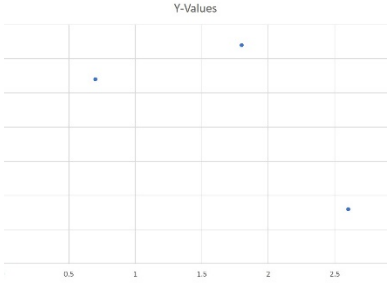

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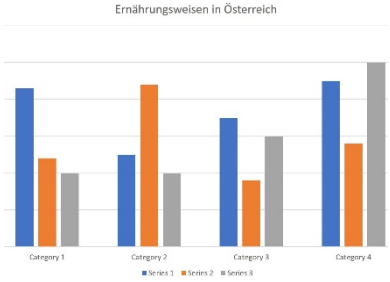

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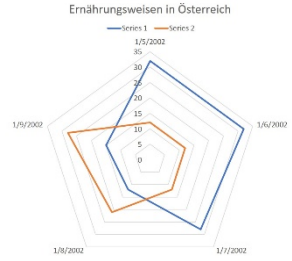
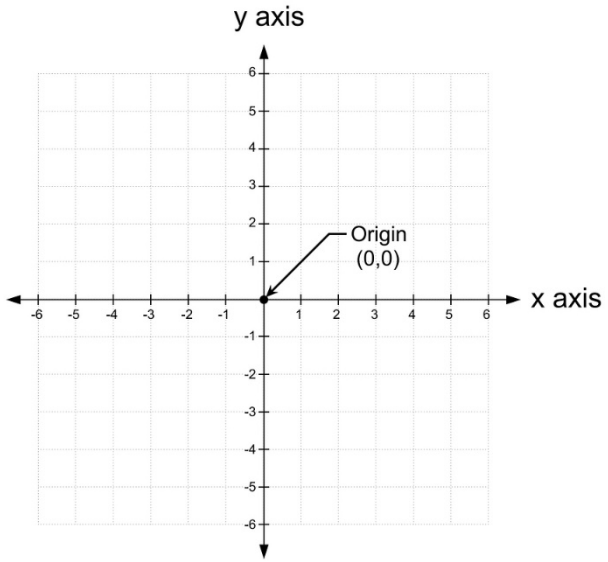


Main elements of a graph

- There are five basic elements that make a **graph** perfect.

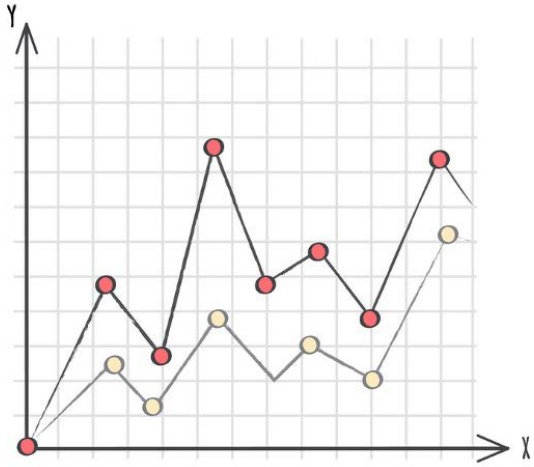
elements
axis labels (x-axis and y-axis)
units in parentheses
intervals of the scale
data/coordinate points
title



x-axis vs *y-axis*

- Reading the **axes** of the graphs helps you **determine** which type of **data** is **being represented**.

x-axis	y-axis
horizontal line	vertical line
independent variable (can be changed)	dependent variable (depends on the independent variable)



The procedure for graphing data

These are the basic steps to draw a graph.

generate a list of points for the relationship

draw a set of axes and define the scale

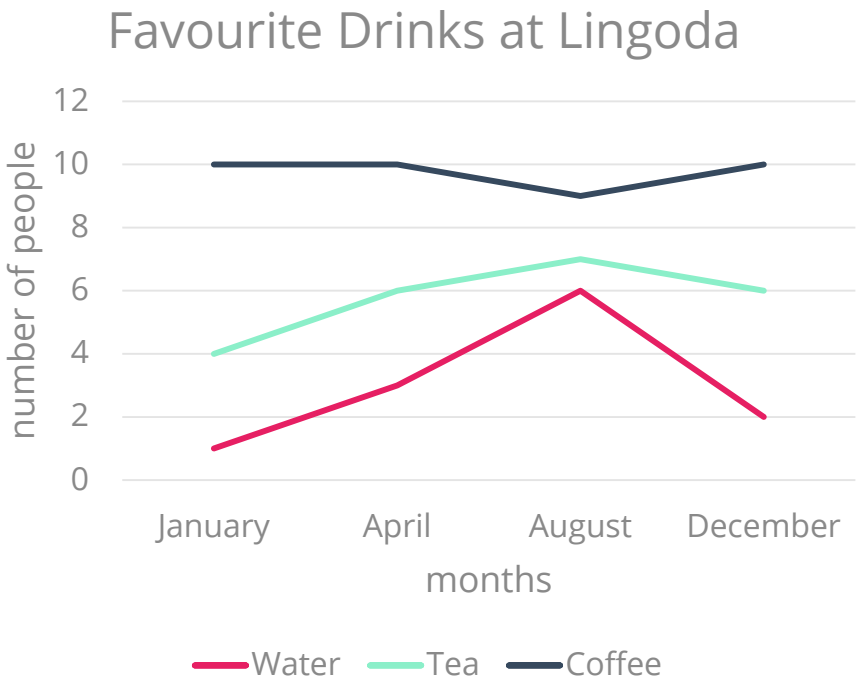
plot the points on the axes

draw the line by connecting the plots

interpret and analyse it

Describe the diagram

What type of diagram can you see below?
Can you read and clarify the data from the diagram?
Write down the key points and share them with your teacher.



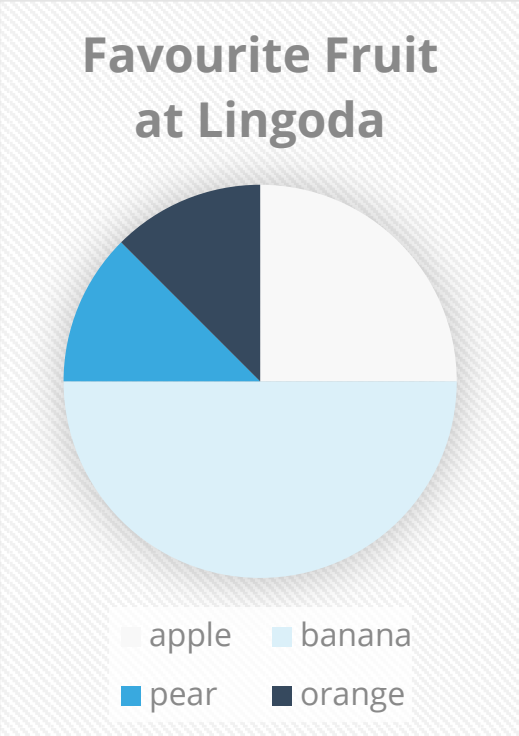
Analysing data

Read the two graphs below.

The basic elements of a graph, which include axes and units, are not shown in the pictures. Use your imagination to create the data and express your analysis to your teacher.

Pie chart

Here you can see a pie chart. Since the pie chart always represents parts of a whole, its data is usually expressed as a percentage. Assign the percentages to the relevant section and also consider which colour they represent in the pie chart.



half	quarter	25%
an eighth	50%	12.5%

Population tracking

What is the definition of the word population?

Do you know which country has the highest population in the world?

What do you think is the main importance of population?

What is the maximum population the Earth can sustain?

World population graph

Graph title: World population growth

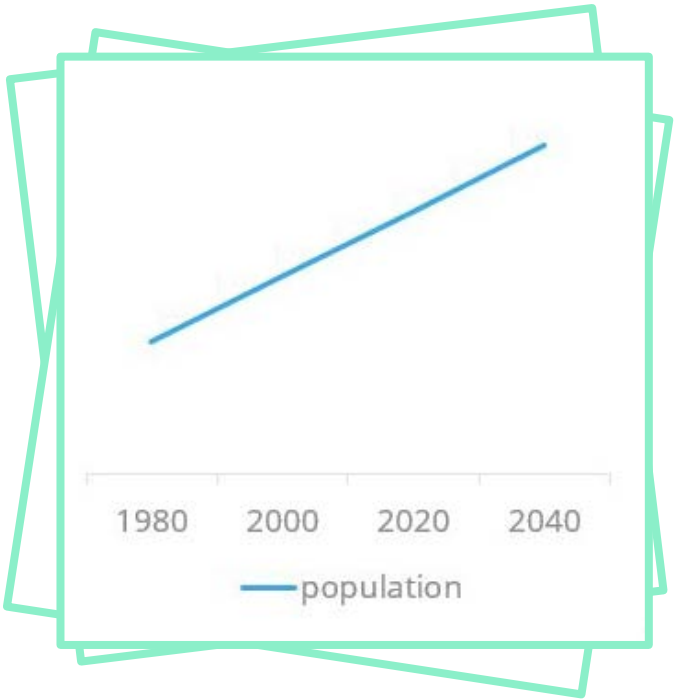
1900: 1,500,000,000
1920: 2,000,000,000
1940: 2,583,000,000
1960: 3,033,000,000
1980: 4,458,000,000
2000: 6,100,000,000

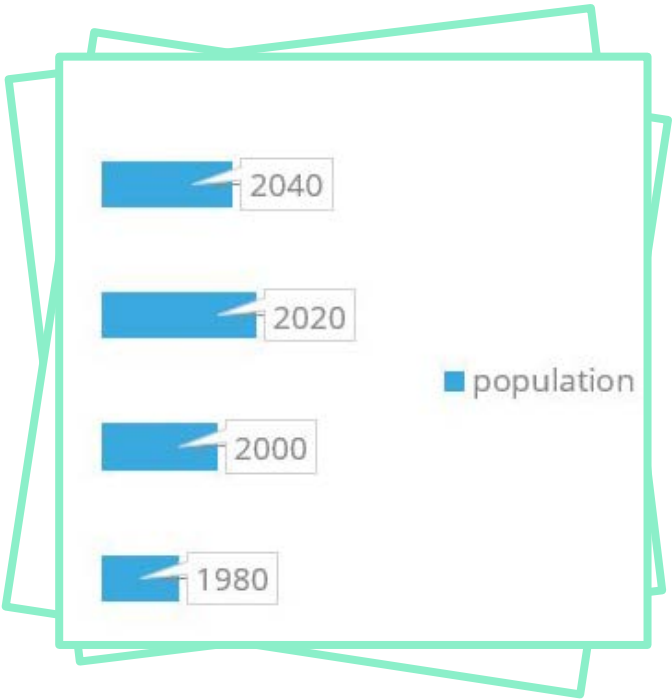
x-axis: years (every 20 years)
y-axis: number of population (billions)

Between 1900 and 2000, the world population increased from 1.5 to 6.1 billion. Use the data provided and make a world population graph of your own.

World population growth

If the human population continuously grows at this rate, we will have 9.7 billion people by the end of the year 2050. Do you think this will be a problem? Which graph below best interprets this growth? Why?





Cities around the world

- The world's cities are growing in both size and number, which means inhabitants, or population, is increasing as well.
- Cities with more than 10 million inhabitants are called **megacities**.

City	Population (approximate - millions)
Tokyo, Japan	9,273,000
Delhi, India	27,928,000
Shanghai, China	24,180,000
Mumbai, India	18,410,000
Cairo, Egypt	19,500,000

Draw your own graph

With the data given on the previous slide, instruct your teacher to enable them to draw a bar chart or line graph below.

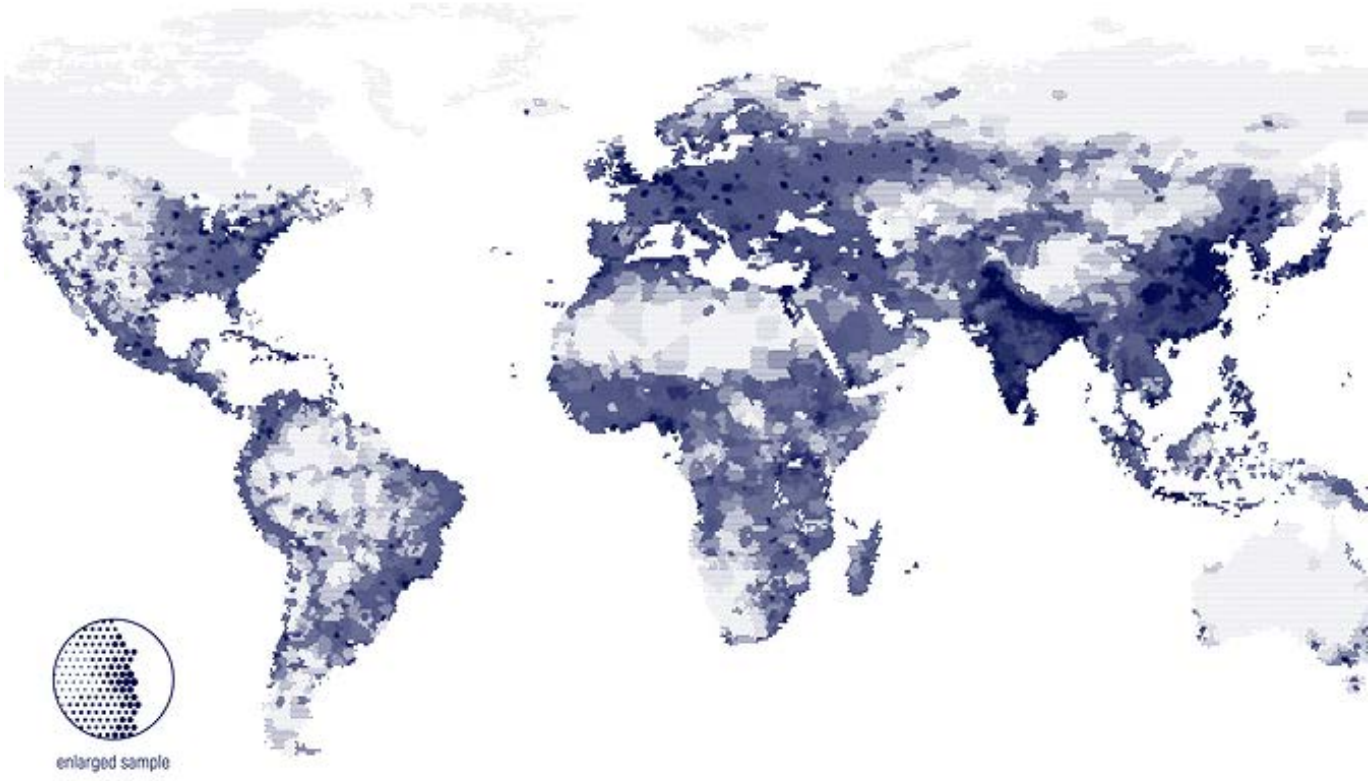
Population density

- **Population density** is a **measurement** of **population per unit area** or **unit volume**.
- To arrive at the **crude population density** of a place, the total number of people who live there is divided by the total land area.

- **Monaco** – 25,718 people per square kilometer
- **Bangladesh** – 1114 people per square kilometer
- **Republic of Korea** – 500 people per square kilometer
- **Russia** – 8.32 people per square kilometer
- **Canada** – 3.60 people per square kilometer

Population density

This is a population density map of the world. Areas that are darker are densely populated, and those with white are sparsely populated. Study the map thoroughly and then move on to the next slide.



Population density

	TRUE	FALSE
1. People are not spread out evenly over the world.	☐	☐
2. Asia is the most densely populated continent.	☐	☐
3. Australia and Canada are densely populated.	☐	☐
4. South America is the most crowded continent.	☐	☐
5. Greenland is sparsely populated.	☐	☐
6. Some places are more crowded than others.	☐	☐

We looked at these words at the beginning of the lesson. Can you use each of them in a sentence?

interpretation

quantity

clarification

perspective

reasoning

outline

Reflect on the goals

Go back to the second slide of the lesson and check if you have achieved all the goals of the lesson.

yes

no

Reflect on this lesson

Think about everything you have seen in this lesson.
What were the most difficult activities or words? The easiest?

If you have time, go over
the most difficult slides again

Answer key

Exercise p. 9

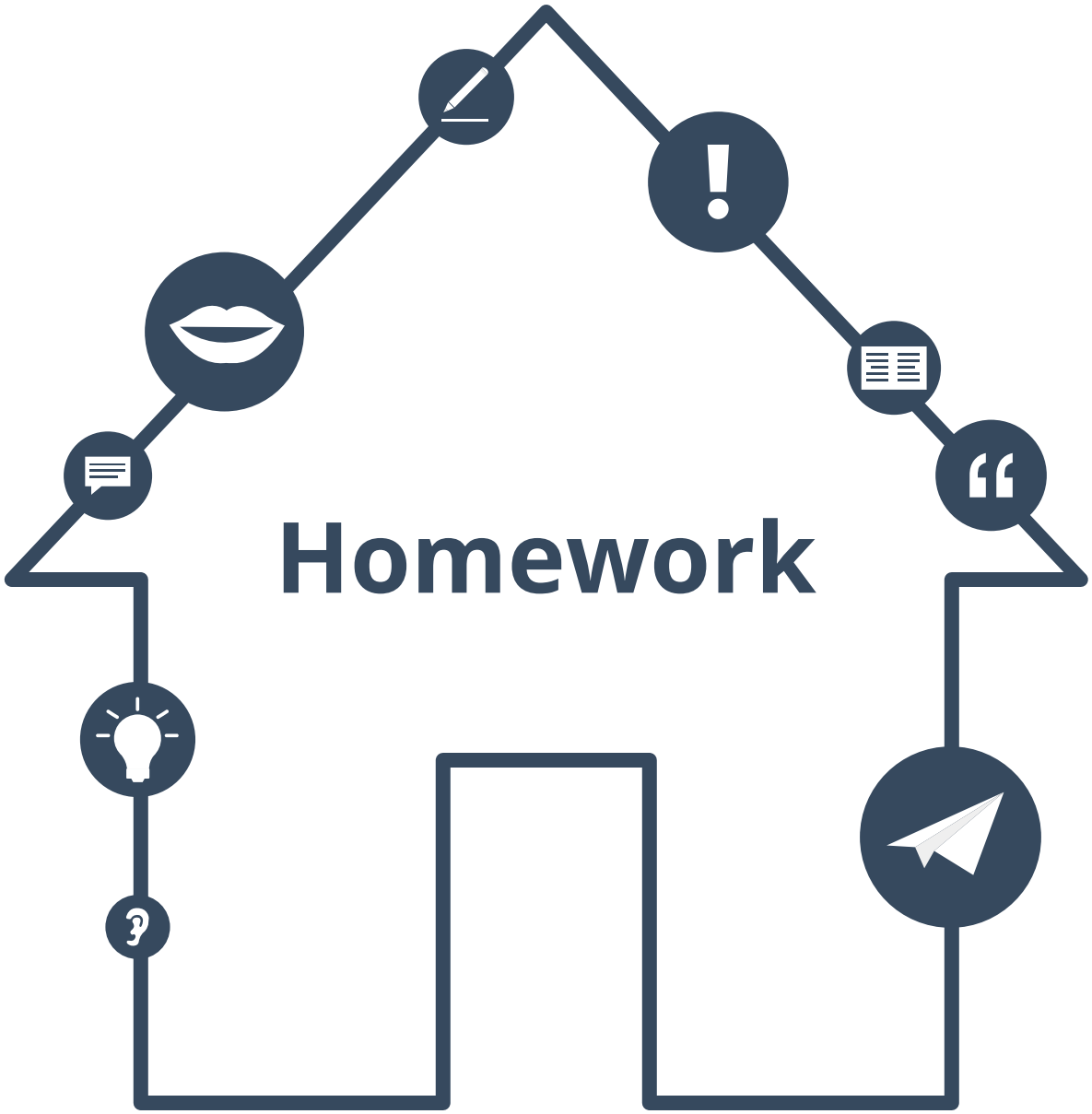
1. An explanatory analysis, especially of statistics, 2. the particular waveband at which radio signals are transmitted, 3. the conversion of words or text from one language into another, 4. analyse in minute detail, 5. a systematic and thorough attempt to learn the facts about something complex or hidden

Exercise p. 13

1b, 2e, 3d, 4a, 5c, 6f

Exercise p. 27

1T, 2T, 3F, 4F, 5T, 6T


Homework

Homework: matching activity

1. The best way to show a percentage of a whole is	a. As the lawyer was providing presentation on his behalf.
2. The politician is under investigation for	b. Over 60% of males watch sports on a regular basis.
3. Most word processing software includes	c. Dissecting a frog in a anatomy class.
4. The suspect did not speak	d. Usually a pie chart.
5. Quantitative data suggests that	e. Templates for charts, diagrams, and drawings.
6. They visit the cinema with	f. missing funds from the political campaign.
7. I will never forget	g. Great frequency – about twice a week.

Homework: population growth in your city

Do some research on the population of your city or country in the years below. Then draw a graph to show the change.

1900:
1920:
1940:
1960:
1980:
2000:

2050:

x-axis:
y-axis:

Title:

Did the population increase or decrease?
What do you think the population will be in the year 2050?

Homework answer key

Exercise p. 33

1d, 2f, 3e, 4a, 5b, 6g, 7c

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