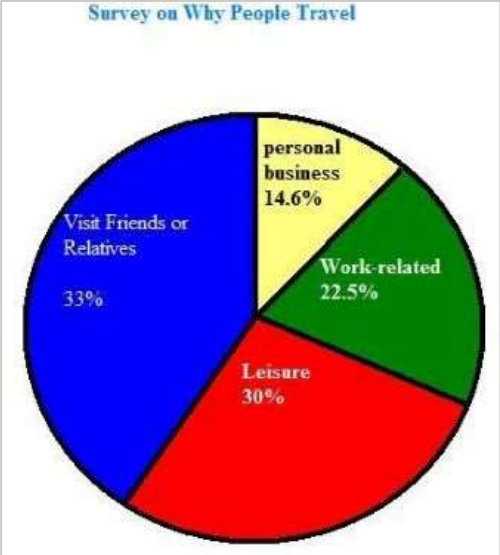
Describing Charts, Graphs and tables

As Henry D. Hubbard, Creator of the Periodic Table of Elements said, “There is magic in graphs. The profile of a curve reveals in a flash a whole situation — the life history of an epidemic, a panic, or an era of prosperity. The curve informs the mind, awakens the imagination, convinces.”

When you have data and questions, how can you create the most effective visual representation to find the answers you seek? Converting data into a powerful visualization or dashboard is the initial stride toward ensuring your data has a meaningful impact.

What is a Chart?

A **chart** is a graphic representation of data that transforms the data into visual components. For example, a pie chart uses slices of a circle and color coding to distinguish between categories of data.

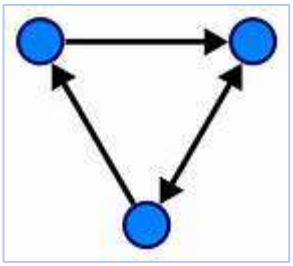


Simple pie charts such as this one are often used to report the results of surveys that do not use mathematical values for their response options.

Simplifying the complexity of large sets of data by making them visually organized when presented makes it easier for people to understand and connect with the conclusions that can be drawn from data analysis.

In his book “*Graphic Methods for Presenting Facts*”, 1914, the American engineer Willard Cope Brinton emphasized that while accurate data and real facts hold value, the manner of presentation often outweighs the facts themselves. Millions of dollars are invested annually in data collection, with the hope that effective presentation will drive meaningful change.

Graphs and **charts** are terms that are often used interchangeably, but they have distinct meanings and serve different purposes. Let's explore the differences:



1. **Graphs**:
    - A **graph** is a type of diagram that represents a system of interrelations or connections among two or more things using distinctive lines, dots, bars, or other visual elements.
    - It is often used in mathematics, statistics, and scientific contexts.
    - Graphs show the mathematical connections or interrelationships between different data sets.
    - They typically relate one qualitative variable to another quantitative variable (often representing time).
    - All graphs are a subset of charts, but not all charts are graphs.

2. **Charts**:
    - A **chart** is a form of graphical representation of data or information.
    - Charts organize and present data in a structured visual format, making it easier to interpret.
    - Unlike graphs, charts can represent both quantitative and qualitative data.
    - Charts include various types, such as:
        - **Bar charts**: Represent data using bars of varying lengths.
        - **Pie charts**: Show proportions or percentages using slices of a circle.
        - **Line charts**: Display trends over time using connected data points.
        - **Tables**: Organize data in rows and columns.
        - And more.

In summary, while all graphs are charts, not all charts are graphs. *Graphs focus on raw data and mathematical relationships, whereas charts provide a clear overview of data categories and values, revealing trends, patterns, or correlations*

Describing charts in English:

There are various types of charts. In the following example we show the numbers of pets in Year 7 of a school.

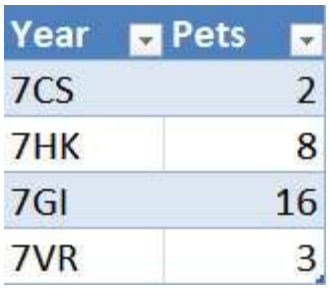
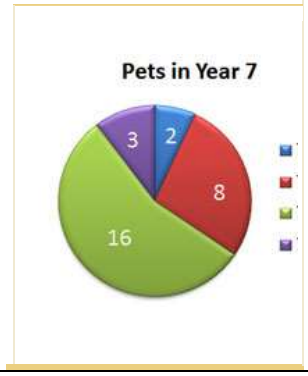
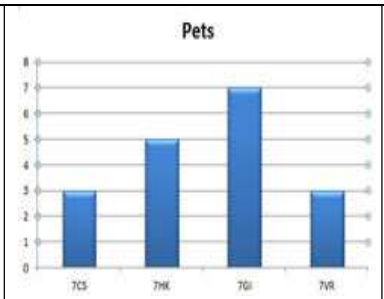
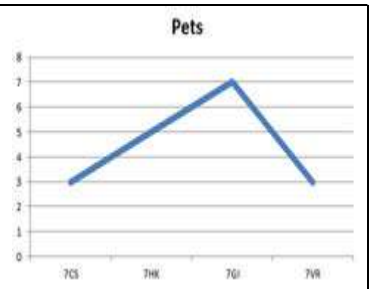
			

table	*Pie chart*	bar chart	line graph

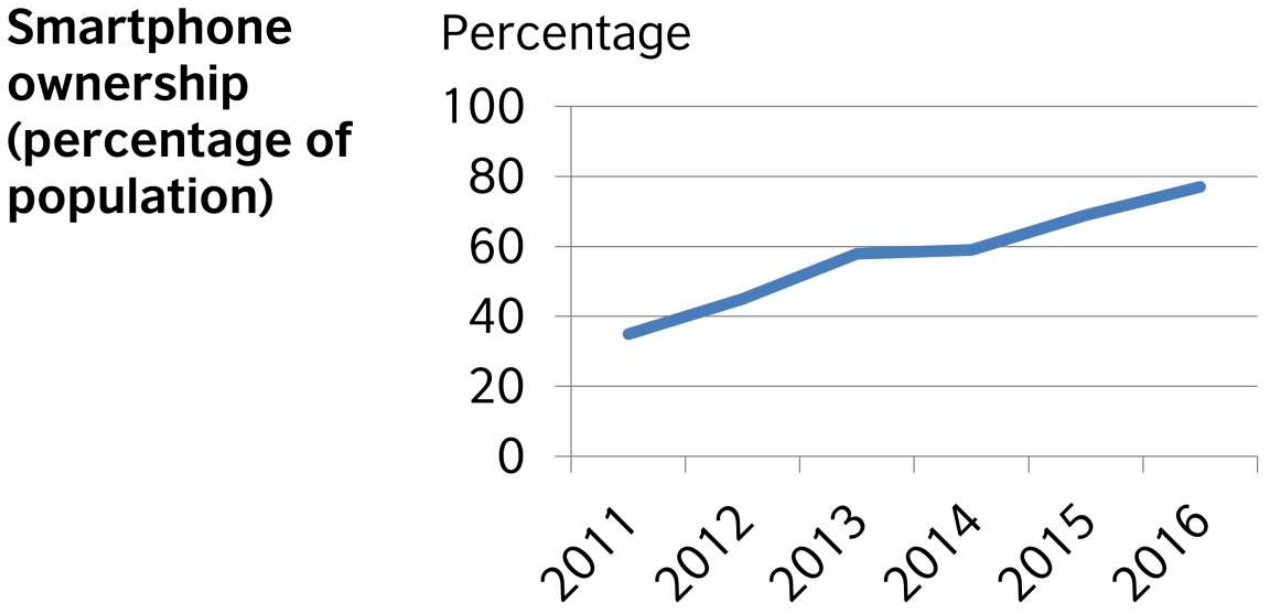
List with phrases to describe charts

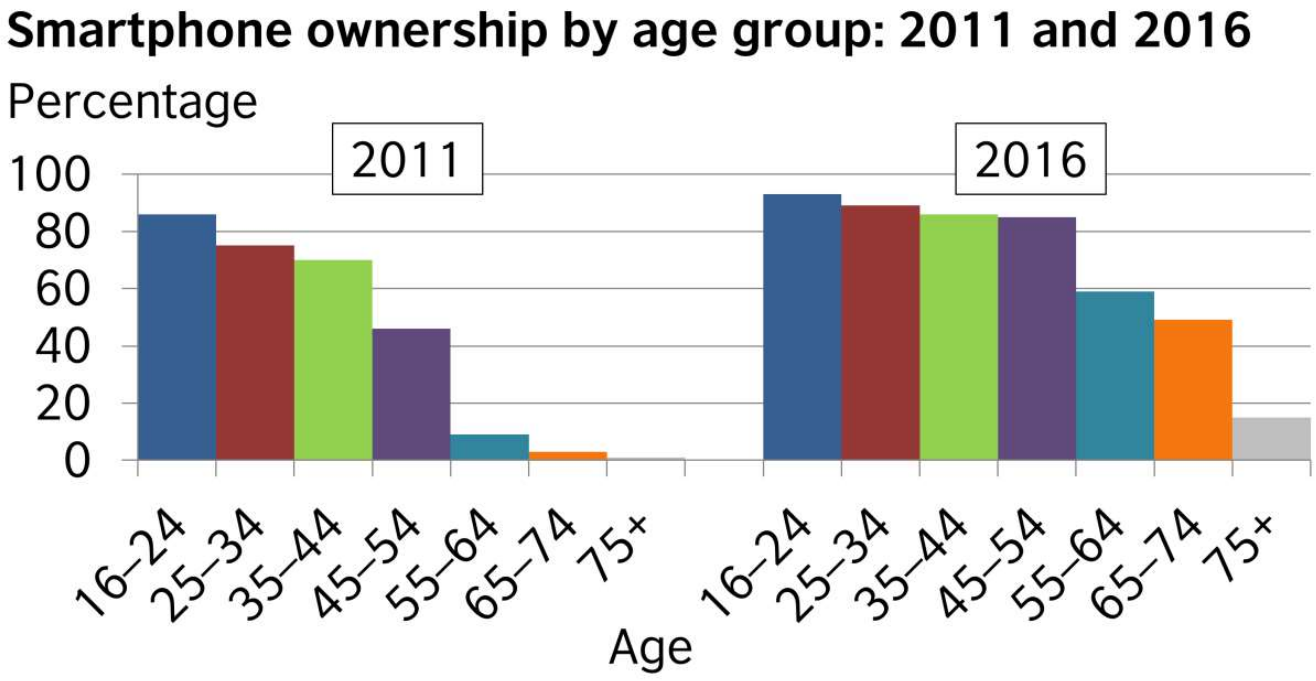
- The pie chart is about ...
- The bar chart deals with ...
- The line graph (clearly) shows ...
- The slices of the pie chart compare the ...
- The chart is divided into ... parts.
- It highlights ...
- ... has the largest (number of) ...
- ... has the second largest (number of) ...
- ... is as big as ...
- ... is twice as big as ...
- ... is bigger than ...
- more than ... per cent ...
- only one third ...
- less than half ...
- The number ... increases/goes up/grows by ...
- The number ... decreases/goes down/sinks by ...
- The number ... does not change/remains stable
- I was really surprised/shocked by the ...
- So we can say ...

Use of Tenses

Mind the correct use of tenses when describing a chart. If the chart deals with facts in the present, use the Simple Present, if the facts are the past, then use the Simple Past. If there is a connection between the past and the present, use the Present Perfect.

Example of describing a chart:





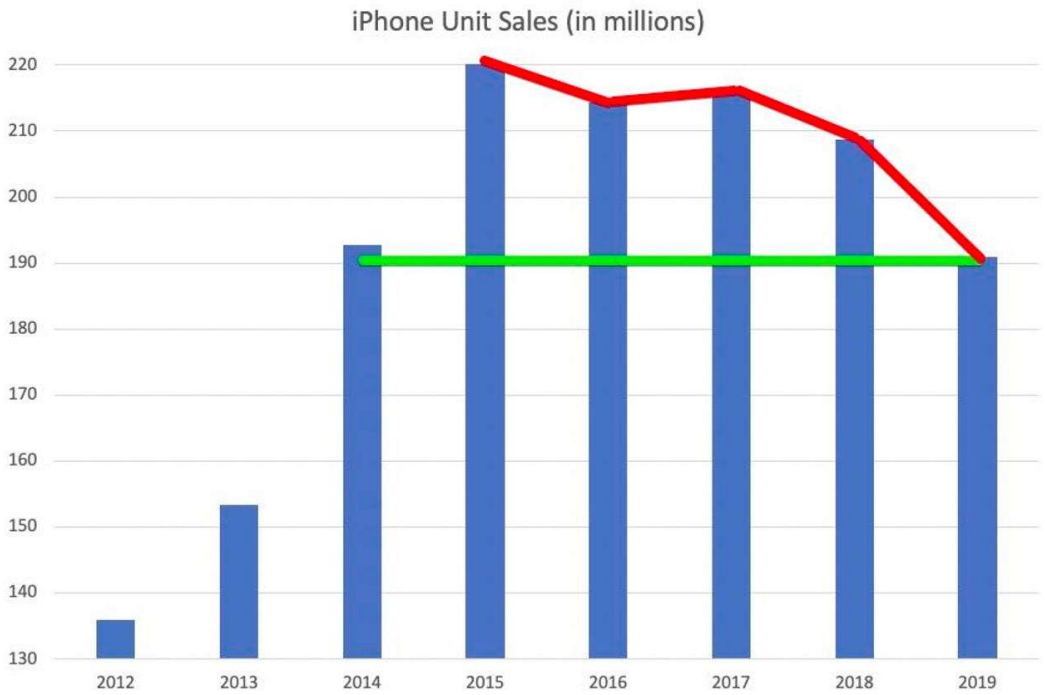
The first chart illustrates the percentage of the population who owned a smartphone from 2011 to 2016, and the second breaks the percentages down by age for 2011 and 2016.

Overall, smartphone ownership increased during the six-year period. In general, the younger people were, the more likely they were to own a smartphone. However, the most significant increases in smartphone ownership between 2011 and 2016 came from people aged 45 to 54, from 46% to 84%; from those in the 55 to 64 category, from 9% to 59%; and from those aged 65 to 74, from 5% to 50%.

The percentage of people who owned a smartphone rose steadily, starting at around 35% in 2011 and reaching about 77% by 2016. People aged 16 to 24 represented the greatest percentage of smartphone ownership in both 2011 and 2016. 75% of people aged 25 to 34 and 72% of those aged 35 to 44 owned a smartphone in 2011, rising to 88% and 86% respectively by 2016.

Although almost nobody in the 75+ age category owned a smartphone in 2011, 15% of this group owned smartphones in 2016.

***Exercise**: try to describe the following chart! Using the right verbs and tenses from what you learned in this lesson!*



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