Presenting results

Once the task is completed, explain to your students what statistical charts are, what they are used for and how they are created. Show them what histograms look like.

What is data analysis?

It is the activity of data processing – drawing conclusions from data in order to obtain useful information on that basis.

What do we create statistical charts for?

For most people, it is easier to memorize an image than a table with figures, and that is why graphical representation of data conveys a much stronger message.

Histograms

They are a special category of bar graphs – the fields of the bars correspond to numerical values.

A histogram is the most popular form of graphical representation of data.

We draw it in the coordinate system. We put subsequent data on the horizontal axis, whereas the frequencies of occurrence of particular data are put on the vertical axis. There is a bar assigned to each datum – it has a fixed width and a height equal to the frequency of that datum. By joining the centers of the upper edges of the histogram bars, we obtain the frequency polygon.

What do histograms look like?

Histograms can take various shapes, depending on the distribution of the statistical feature being surveyed. However, in the case of an appropriately large size of statistical sample of independent observations of a given feature, the histogram will take the shape of a bell. We call a distribution of this shape the normal distribution.

Height histograms created during the lesson will most probably be bell-shaped.

Talk

Discuss selected elements of statistical survey with your students.

The aim of the conversation is to explain some basic statistical terms to your students.

Mean value: in statistics, this is the measure of the average level of a measurable statistical feature of units within a statistical sample. An example of a mean value is the arithmetic mean.

The smallest value: the smallest value of a statistical feature measured in the statistical sample being surveyed.

The largest value: the largest value of a statistical feature measured in the statistical sample being surveyed.

Conclusions

Once the work is completed, the students interpret the results.

The more data we collect, the more the histogram will resemble a bell – we can observe it in the course of creating the histogram.
Based on the histogram, which takes the shape of a symmetrical bell, it is possible to estimate the mean value (this is the medium range – the one that forms the highest bar) as well as the smallest value and the largest value in the sample, by looking at the extreme non-empty ranges of the histogram.
The histograms of many features in nature take a similar shape – the shape of a bell; therefore, such variables are referred to as having the normal distribution.

Talk

Summary

Is it possible to measure everything?

Depending on how you frame and define that which exists, there should be an aspect of numerology that could be applied to measure anything.

The purpose of taking measurements is to learn more about something, so that it would be possible to compare it to something else and assess it.