### Parameters: calculation and interpretation

**STATISTICS**

05

**A prize in a cap**

A brand of soft drinks has incorporated photographs of 9 animals in its caps. The company will give away a trip to those consumers who manage to gather the 9 photographs. How can you find out the number of soft drinks that you have to consume on average to receive the prize?

To answer this question, it is necessary to make an estimate. One way to do this is to simulate the situation by generating random numbers with the calculator. There are two functions that allow it to do so: the Ran # function and the RanInt # function (which we will use in this activity).

Generate random numbers with your calculator until you get the first 9 natural numbers (1, 2, 3, 4, 5, 6, 7, 8, and 9). Write down how many numbers you had to generate to get it in a table like the one shown below. Repeat the simulation 10 times following the example.



**1**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Results** | | | | | | | | | |
| **Simulation** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total (No. of drinks) |
| **1ª** | | | ||| | ||| | || | |||| | | | || | | | | | 18 |
| **2ª** |  |  |  |  |  |  |  |  |  |  |
| **3ª** |  |  |  |  |  |  |  |  |  |  |
| **4ª** |  |  |  |  |  |  |  |  |  |  |
| **5ª** |  |  |  |  |  |  |  |  |  |  |
| **6ª** |  |  |  |  |  |  |  |  |  |  |
| **7ª** |  |  |  |  |  |  |  |  |  |  |
| **8ª** |  |  |  |  |  |  |  |  |  |  |
| **9ª** |  |  |  |  |  |  |  |  |  |  |
| **10ª** |  |  |  |  |  |  |  |  |  |  |

Find, from your 10 simulations, the average number of soft drinks that you have to consume to get the 9 animals. What is the meaning of that average?



**2**

Enter in your calculator the number of refreshments you have obtained in your 10 simulations and share your results with your colleagues, using the QR code and the CASIO EDU + application.



**3**

From the data of the whole class, calculate the average of the number of soft drinks that it is necessary to consume to complete the collection. What is the relationship between this mean and the one you obtained in activity 2? What do you observe? Do you think this phenomenon always happens? Why?



**4**

.

A friend has only been able to perform 9 simulations and has obtained an average of 29.5 soft drinks how would you calculate the average of the soft drinks from all the simulations?



**5**

This teaching material is written by the Federación Española de Sociedades de Profesores de Matemáticas (FESPM) and other authors.

You can use and alter the teaching material for educational purposes, however the use of it for the purpose of sales is prohibited.