

Lesson Plan – Hidden Coins

Goals:

Exercise and improve numerical, probability and statistics, as well as logic deduction skills.

Commented description of materials to be used:

The Hidden Coins exhibit utilises a box with coins inside. Each time you shake the box, you can see a random sample of the total coins contained within. The user is asked to determine the value of money in it.

Suggestions:

Depending on availability, you can use different values or colours.

Strategies:

We allow learners to shake the box and take note of the sample as many times as they would like based on the information that there are 20 coins in the box with the value of 1 or 2. Through a process of trial and error, learners will naturally begin to calculate in different ways how they can estimate the total value of coins contained in the box.

Suggestions:

Prompt learners with different questions on the number of times that the box needs to be shaken and how they can know with certainty the value within.

Appraisal / Evaluation of Students:

We increase the number of tokens and their variability (e.g., value or colour).

Suggestions:

By increasing the variability and number of tokens, the estimation becomes more complex and uncertain, reflecting real-world data.

Assessment of lesson:

We compare the competence of the learners in estimating the value or colours of the coins at the beginning and the end of the lesson. Also, we qualitatively try to understand whether the learners can be more critical of conclusions based on data.

Suggestions:

A series of questions can be made on how to improve the statistical experiment.

Closure:

Overview of activity and key points, feedback from learners for further improvements and/or adjustments to be made.