

ROULETTE OR PIGGY BANK?

Numerous films offer different scenes shot in casinos in which the protagonist usually ends up taking home a substantial sum. Seeing these frames might seem almost obvious to win at games like roulette, but is it really like that? Using simple combinations of favorable cases on possible cases, you can evaluate the reality and randomness of a possible, but unlikely winning.

Overview "ROULETTE OR PIGGY BANK"

Context

Everyday life;
Economics

How conscious are we when we play?

Cognitive processes

Analyze situations and
manage them

Critical thinking

Contents

Quantity and
numbers;
Data and
probability;
Use of
spreadsheets.

Target group (including necessary preliminary skills and competences)

Adults and young adults;
Basic skills in mathematics and computer
science.

Provisions

Mathematical difficulties;
Flexibility.

Learning outcomes and outcomes

Real perception between safe spending
and random gain.

Main information

Contents	Whole numbers; percentages; Use of spreadsheets.
Target group	Adults and young adults Basic skills in mathematics (particularly percentages and proportions) and computer science (basic Excel).
Intention of learning	<ul style="list-style-type: none"> – Numeracy for personal and private purposes – Numeracy to understand society
Duration	4 hours
Material and resources	Movies, online simulator, blackboard, computers, projector.
Group size	Ranges from 6 to 8 learners
Declaration of problem	<p>Is there a talent in the game of roulette? What is the real chance to win this game?</p> <p>Often, especially watching some movie scenes, it may seem like a simple and secure winning game, but before you let yourself be tempted by the casino table it is good to know that in reality it is possible to predict the possibility of real winning and consequently evaluate if it is really worth it.</p>
Job applications	<ul style="list-style-type: none"> - Have you ever played roulette? - Do you know the mechanisms of the game? - How much will you win by betting EUR 1 on 7? - Why does the dealer always win? - How should the winnings be calculated? ... and how is it in reality? - Let's try to bet five laps? (<i>Using online Simulator</i>) - What results have we achieved? - How to make a model on Excel?
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Work plan

Time (lessons)	Description of content/activity	Material	Methodical and didactic information
30'+	<p>1. Discover</p> <p>The teacher, using images or movies, introduces the theme of the activity using some of the questions in the “<i>Work Questions</i>” section.</p> <p>This phase of the activity can be carried out through an open discussion with the students who compare and interact with each other.</p> <p>[In the event that students do not know the game and the mechanisms of roulette, the teacher will play this part of the lesson in a frontal way.]</p>	Videos or images taken from movies.	<p>Frontal lesson;</p> <p>Discussion;</p> <p>Interaction;</p> <p>Questioning.</p>
30' + 30'	<p>2.1 Simulation</p> <p>Using an online simulator, students will try to play writing down the results obtained.</p> <p>2.2 Guided exercise</p> <p>The teacher submits to the students an exercise that will be carried out under his guidance.</p>	<p>Online simulator;</p> <p>Internet connection;</p> <p>Headlamp;</p> <p>Exercises prepared.</p>	<p>Interaction;</p> <p>Hands on learning;</p> <p>Frontal lesson.</p>
45' + 15'	<p>3.1 Exercise independently</p> <p>Students are offered an exercise similar to that carried out in point 2.2; In this phase, students will work in pairs.</p> <p>3.2 Correction and comments</p> <p>The exercises carried out in point 3.1 shall be corrected.</p> <p>A brief phase follows in which the results and the initial questions asked in point 1 are discussed together.</p>	Exercises	<p>Hands on learning;</p> <p>Collaborative learning;</p> <p>Discussion.</p>

<p>30' + 60'</p>	<p>4.1 Exercise on Excel</p> <p>An exercise on excel previously prepared by the teacher is exhibited; the exercise in question will be similar to those carried out in points 3.</p> <p>This part will be preparatory to the construction of the model on excel (see section 4.2).</p> <p>4.2 Model construction</p> <p>The construction of the model on excel is guided by the teacher. A part of the explanation of the excel functions and subsequent use is required.</p> <p>Once the model is created, it is tested using one of the exercises previously performed.</p> <p>4.3 Discussion</p> <p>At the end of the activity learners are exhorted to comment and express their ideas.</p> <p><i>[Have their beliefs changed by evaluating the matter from a mathematical point of view?]</i></p>	<p>Computers;</p> <p>Headlamp;</p> <p>Exercises.</p>	<p>Brainstorming;</p> <p>Explicit teaching;</p> <p>Collaborative learning;</p> <p>Hands on learning;</p> <p>Feedback.</p>

Appendix

1. DISCOVER



2.1 SIMULATION



2.2 GUIDED EXERCISE

For example:

“CHOOSE A NUMBER FROM 0 TO 36 FOR 5 TIMES (IT CAN EVEN BE THE SAME ALL 5 TIMES), KNOWING THAT YOU HAVE A TOTAL BUDGET OF 20 EUROS, HOW MUCH DO YOU EXPECT TO WIN?”