

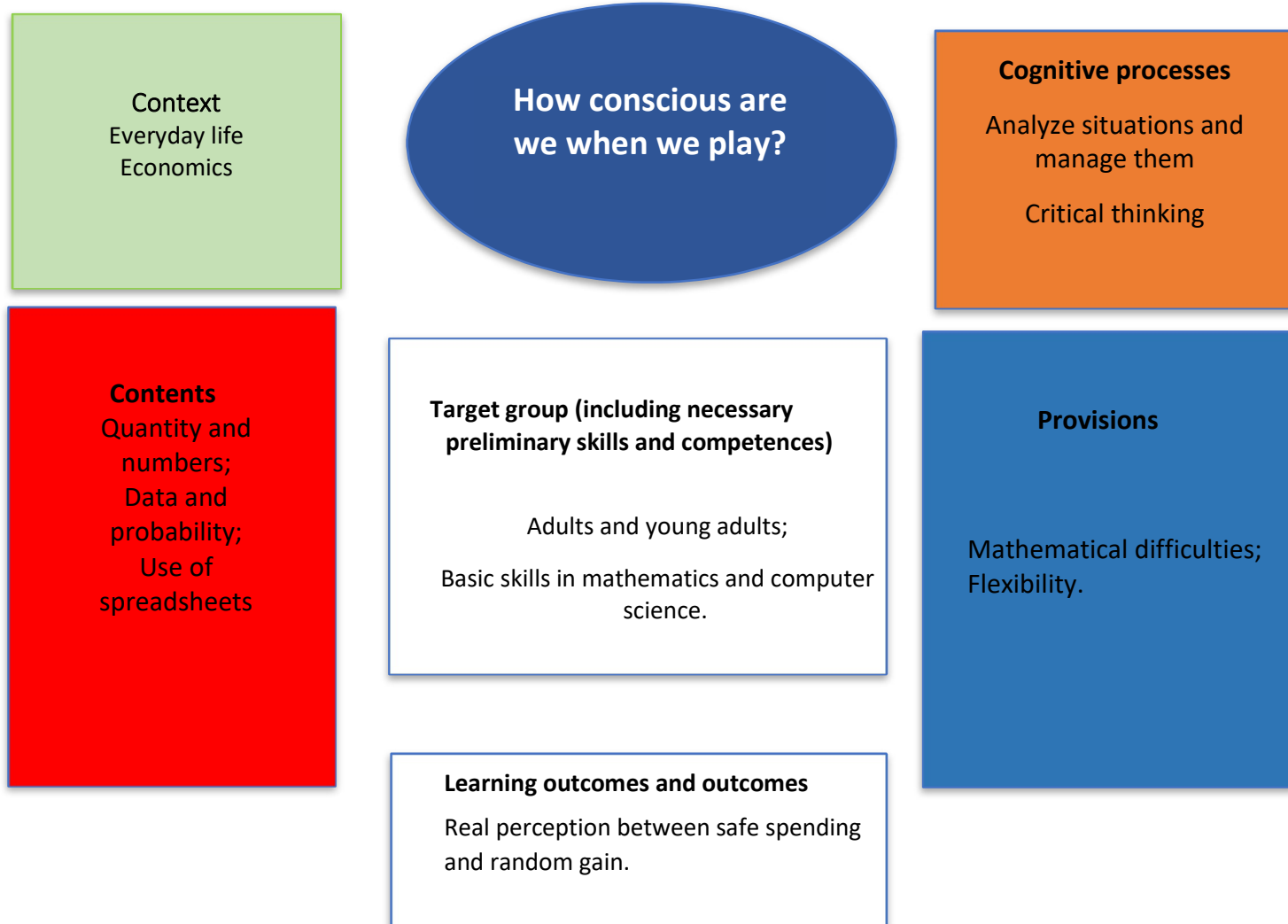
## ROULETTE OR PIGGY BANK?

### Luck or logic?

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?”



Main information	
Content	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)
Learning intention	What is the intention of adults to face this problem? – Numeracy for personal and private purposes – Numeracy to understand society
Duration	Approx. 4 lessons
Material and resources	Movies Online simulator Blackboard Computers projector
Group size	Range from 6 to 8 learners
Problem statement	Is there a talent in the game of roulette? What is the real chance to win this game? 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.
Working questions	<ul style="list-style-type: none"> <li>– Have you ever played roulette?</li> <li>– Do you know the mechanisms of the game?</li> <li>– How much will you win by betting EUR 1 on 7?</li> <li>– Why does the dealer always win?</li> <li>– How should the winnings be calculated? ... and how is it in reality?</li> <li>– Let's try to bet five laps? (Using online Simulator)</li> <li>– What results have we achieved?</li> <li>– How to make a model on Excel?</li> </ul>
Learning outcomes and results	Students are able to have a real perception between safe spending and random gain.



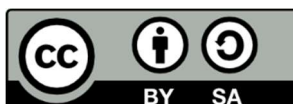
Working plan

Time (lessons)	Description of content/activities	Material	Methodical and didactic information <sup>1</sup>
30 minutes	<p><b><u>DISCOVER</u></b></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 and images taken from movies (see appendix 1 for examples)	Frontal lesson Discussion Interaction questioning
30 minutes + 30 minutes	<p><b><u>2.1 Simulation</u></b></p> <p>Using an online simulator, students will try to play writing down the results obtained.</p> <p><b><u>2.2 Guided exercise</u></b></p> <p>The teacher submits to the students an exercise that will be carried out under his guidance.</p>	Online simulator Internet connection Headlamp Exercises prepared (see appendix 2 for an example)	Hands on learning Interaction Frontal lesson
45 minutes + 15 minutes	<p><b><u>3.1 Exercise independently</u></b></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><b><u>3.2 Correction and comments</u></b></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	Hands on learning Collaborative learning discussion

<sup>1</sup> for description and explanation of kinds of tasks, HITS and other background information please consult the teacher’s/user’s guide



30 minutes + 60 minutes	<p><b><u>4.1 Exercise on Excel</u></b></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><b><u>4.2 Model construction</u></b></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><b><u>4.3 Discussion</u></b></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>	Computers Headlamp exercises	Brainstorming Explicit teaching Collaborative learning Hands on learning feedback
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Appendix 1

Phase: DISCOVER



Phase: SIMULATION



## Appendix 2

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?”

