

**Experimental Probability as the Introduction to Theoretical Probability**

Intro:	Lesson for beginner-level high school students at the International School of Poznan. Students were divided into groups to conduct probabilistic experiments, record the results of the experiments, and then I showed them how they could use Google Sheets to collect data, present it in tabular form, and finally to represent it on one of the pie charts.
Aims and Goals:	<p>By the end of this lesson, students'll understand:</p> <ol style="list-style-type: none"><li>1. The concept of probability and its relevance in everyday life.</li><li>2. How experimental probability, based on real-world trials, can lead to theoretical probability, which predicts outcomes based on mathematical principles.</li><li>3. How to use experiments with coins, cards, or dice to introduce theoretical probability.</li><li>4. How to represent data in Google Sheet.</li></ol>
Summary:	Experimental probability - this is the probability of an event based on repeated trials or experiments. So, through experiments with coins, cards, or dice, we can gather data to estimate probabilities experimentally. Then, by analyzing these experiments and understanding equally likely outcomes, we can generalize our findings into theoretical probabilities.
Link:	<a href="https://docs.google.com/spreadsheets/d/1XkHtUvrruC-6lhVs2smhu2F9wNwYV_p0r71kflqK1ol/edit?usp=sharing">https://docs.google.com/spreadsheets/d/1XkHtUvrruC-6lhVs2smhu2F9wNwYV_p0r71kflqK1ol/edit?usp=sharing</a>

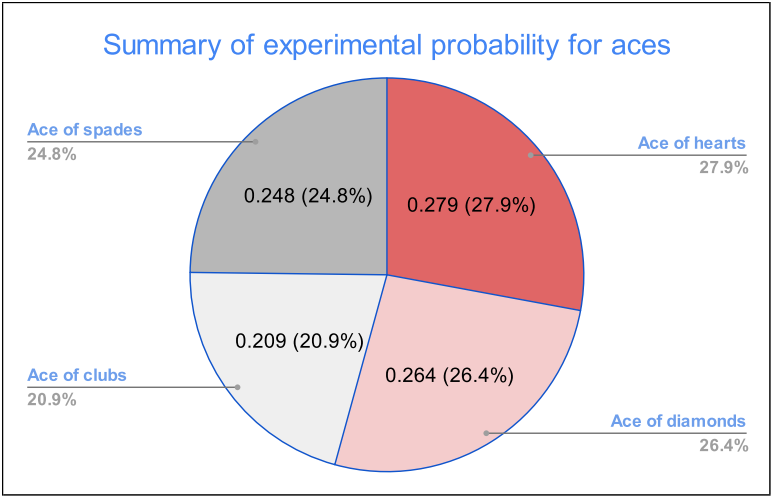
Group 1		Number of trials	40
Card	Number of occurrence	Percentage	
Ace of hearts	11	27.50%	
Ace of diamonds	12	30.00%	
Ace of clubs	11	27.50%	
Ace of spades	6	15.00%	

Summary of Groups' Results		Number of trials	129
Card	Number of occurrence	Percentage	
Ace of hearts	36	27.91%	
Ace of diamonds	34	26.36%	
Ace of clubs	27	20.93%	
Ace of spades	32	24.81%	

Theoretical probability: 1 / 4 = 25.00%

Group 2		Number of trials	38
Card	Number of occurrence	Percentage	
Ace of hearts	13	34.21%	
Ace of diamonds	8	21.05%	
Ace of clubs	5	13.16%	
Ace of spades	12	31.58%	

Group 3		Number of trials	51
Card	Number of occurrence	Percentage	
Ace of hearts	12	23.53%	
Ace of diamonds	14	27.45%	
Ace of clubs	11	21.57%	
Ace of spades	14	27.45%	



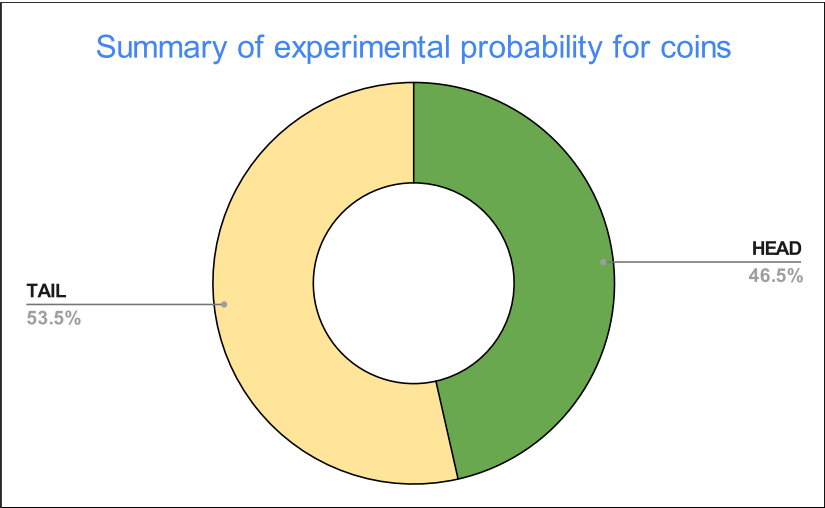
Group 1		Number of trials	42
Coin	Number of occurrence	Percentage	
HEAD	15	35.71%	
TAIL	27	64.29%	

Summary of Groups' Results		Number of trials	155
Coin	Number of occurrence	Percentage	
HEAD	72	46.45%	
TAIL	83	53.55%	

Theoretical probability: 1 / 2 = 50.00%

Group 2		Number of trials	45
Coin	Number of occurrence	Percentage	
HEAD	26	57.78%	
TAIL	19	42.22%	

Group 3		Number of trials	68
Coin	Number of occurrence	Percentage	
HEAD	31	45.59%	
TAIL	37	54.41%	



Group 1		Number of trials	500
DIE	Number of occurrence	Percentage	
1	72	14.40%	
2	87	17.40%	
3	95	19.00%	
4	78	15.60%	
5	78	15.60%	
6	90	18.00%	

Group 2		Number of trials	120
DIE	Number of occurrence	Percentage	
1	21	17.50%	
2	16	13.33%	
3	20	16.67%	
4	20	16.67%	
5	26	21.67%	
6	17	14.17%	

Group 3		Number of trials	207
DIE	Number of occurrence	Percentage	
1	42	35.00%	
2	35	29.17%	
3	29	24.17%	
4	31	25.83%	
5	40	33.33%	
6	30	25.00%	

Summary of Groups' Results		Number of trials	827
DIE	Number of occurrence	Percentage	
1	135	16.32%	
2	138	16.69%	
3	144	17.41%	
4	129	15.60%	
5	144	17.41%	
6	137	16.57%	

Theoretical probability: 1 / 6 = 16.67%

