

Experimental Probability

Name:

Date:

INQUIRY

If you flip a coin 10 times, will you always get exactly 5 heads? What about 100 times? 1000?

Discuss with your partner. Write your initial ideas below:

Key Vocabulary

Term	Definition
Theoretical probability	What SHOULD happen based on maths.
Experimental probability	What ACTUALLY happens when you test it.
Relative frequency	Experimental prob = successes / total trials.

Part A — Recording Results

1. A student rolls a die 30 times and gets: 1(x6), 2(x4), 3(x5), 4(x7), 5(x3), 6(x5). (a) Find experimental probability of rolling a 4. (b) Find theoretical probability of rolling a 4. (c) Why are they different? [4 marks]

Part B — Predictions

2. A spinner has $P(\text{red}) = 0.3$. If spun 200 times, how many reds would you expect? [2 marks]

Show your working:

3. In 50 games of Korean rock-paper-scissors, you won 22 times. What is your experimental probability of winning?
How does this compare to the theoretical $\frac{1}{3}$? [3 marks]

Show your working:

Part C — Reflection

4. Explain why experimental probability gets closer to theoretical probability as you do more trials. This is called the Law of Large Numbers. [3 marks]