Subject: Maths
Topic: Probability

Class Average

Sequence	Precise	Technical	Confluent
24.1	18.5	23.7	24.2

Lesson by Mr Michael Gauci

Since the class uses Sequence, Technical and Confluent reasoning almost at a use first level and Precision at a use as needed level, this topic gives me the opportunity to provide students with hands-on activities where they have to

- *Perform experiments*
- *Tabulate results*
- *Make predictions*

Lesson: Estimating Probabilities
Objectives:
Students will learn: to use the relative frequency to estimate probabilities
To make subjective estimates of probability – the need for a reasonable sample size.

Resources: A coin for every two students.

This lesson enhances technical and confluent reasoning as students are required to apply their knowledge on probability, interpret a frequency table, imagine and predict probabilities for a much larger sample size.

Introduction:
Ask students – How can I find the probability that someone chosen at random (not present in the classroom) is left-handed?

Prompts – is it correct to say that, since there are two possible outcomes (left or right-handed) than the answer is ½?
Students should mention that some sort of a survey is needed

Task 1:
Ask students to raise their hands if they are left handed
Write on board:

Left-handed	*e.g. 4*
Right-handed	*21*
Total	*25*

Work out the relative frequency of left handedness ($\frac{left-handed}{total}$ = 4/25)
Can I say that if I ask a student from another class the probability that he is left handed is 4/25?
How can the result be more reliable?

Task 2 (main task):
We know that the probability of getting a head or a tail when tossing a coin is ½. What are the outcomes when tossing a coin for 10, 20, 30 … times

- Tell students to pair up (all they require is a paper and pencil)
- Give a coin to each pair of students
- They are to toss the coin for 10 times and record the number of heads

In the meantime write this table on board

No. of experiments	No. of Heads	Relative frequency
10		
20		
30		
40		
50		
60		
70		
80		
90		
100		

Ask each pair of students their results and fill the table.
The relative frequency is supposed to converge to ½

Conclusion:
If I do a similar experiment, this time involving a dice repeating it for 600 times, approximately how many times would I get a

- 1
- An even number
- 3 or 4?