Math Live – *Probability*: Assessment Task

Grade: 5 **Strand**: Statistics and Probability (Chance and Uncertainty) **Outcome:** 4

SPECIFIC LEARNER OUTCOMES – Statistics and Probability (Chance and Uncertainty)	
SP4	Compare the likelihood of two possible outcomes occurring, using words such as: • less likely • equally likely • more likely.

PROCESSES **Communication (C), Connections (CN), Mental Mathematics and Estimation (ME), Problem Solving (PS), Reasoning (R), Technology (T), Visualization (V)**
C, R, CN, PS

EVIDENCE the student has achieved the outcomes

Each student will:

- Design a probability experiment with a predicted outcome.
- Record results of a single event probability experiment.
- Explain the results of a probability experiment using the vocabulary of probability.
- Explain how to modify a probability experiment to change the likelihood of a specific event.

TEACHER NOTE

- In this assessment task, students will be asked to demonstrate their understanding of probability by designing an experiment in which a red block is most likely to be chosen out of a bag containing at least 25 blocks of four different colours. Students will record the result of 30 trials in a tally chart and then summarize their results using the language of probability. Students are then expected to explain how the experiment can be changed to make the probability of choosing a red block less likely or equally likely.
- Students may do this in a variety of ways. They may choose to use fewer than 25 blocks, to change the number of red blocks keeping the total 25, or to use fewer than 4 colours. All are acceptable solutions.

Math Live – *Probability*: Assessment Task

1. Plan a probability experiment so that a red block will be more likely to be chosen when picking a single block out of a bag.

2. Place at least 25 blocks of four different colours in a bag. Record the number of each colour of block below.

   I placed _____blocks in the bag. I want red to be more likely to be drawn so I put in these blocks:

   _____*were* _____ (number) (colour)

   _____ *were* _____ (number) (colour)

   _____*were* _____ (number) (colour)

   _____ *were* _____ (number) (colour)

3. Draw 1 block from the bag and record the colour of the block chosen in the frequency diagram below.

4. Put the block back into the bag. Continue drawing a block from the bag and recording the result until you have completed 30 draws. Remember to put the block back into the bag after each draw.

Colour	Number of Times Chosen

5. Use the data you collected to explain the results of your experiment. Were your results what you planned for – "a red block will be more likely to be chosen"? Explain why or why not using the language of probability.

Use the back of the page if needed □

6 a) Explain how you would change the experiment so that a red block would be less likely to be chosen from the bag than any other colour.

b) Explain why you made this change.

7 a) Explain how you would change the experiment so that a red block would be equally likely to be chosen as a block of another colour.

b) Explain why you made this change.

Math Live –*Probability*: Scoring Guide

Level / Criteria	Plans and carries out a probability experiment Question #1-#4	Explains the results of a probability experiment Question #5
Wow!	Plans and carries out an experiment using at least 25 blocks designed to lead to a predetermined outcome (red is most likely to be chosen)	Provides an insightful explanation that is logical and supported by the data using the vocabulary of probability
Yes		Provides a reasonable explanation that is logical and supported by the data using the vocabulary of probability
Yes, but…		Provides an explanation that is supported by the data using the general terms of probability
No, but…	Plans and carries out an experiment that may use at least 25 blocks but is not designed to lead to a predetermined outcome (red is most likely to be chosen)	Provides an incomplete and/or confusing explanation that may not be supported by the data and fails to use the vocabulary of probability
Insufficient / Blank	No score awarded due to insufficient evidence of student learning based on the requirements of the assessment task	No score awarded due to insufficient evidence of student learning based on the requirements of the assessment task