**Probability Practise Assessment - Marble Snap**

**Introduction**

This activity requires you to undertake a probability investigation about the game of chance called Marble Snap - discussion and reasoning, and how well you link this to the context will determine the overall grade.

**Instructions for the game Marble Snap**

* Place three red and one blue marble in one bag
* Place two red and two blue in another bag
* Place one red and one blue in another bag
* Draw a marble from each bag
* Three of the same coloured marbles is a snap

**Part 1**

Consider the probability distribution of the **number of blue marbles** that are drawn from the bags

1. Pose an investigative question.

A suitable investigative question reflects the probability distribution, has a clear variable for investigation, requires a statistical analysis, and can be meaningfully answered with data gathered by shooting sets of three free throws.

1. Make a prediction of your expected results.
2. Plan an experiment to answer your question, and write down your procedure. Your experimental procedure must:

* discuss and define the set of possible outcomes;
* identify the number of trials;
* list the steps needed to perform your experiment (could be doing the experiment physically or use numbers to represent each colour and a random number generator)
* discuss any sources of variation and how you intend to manage them;
* explain how you will record your results;
* be sufficient to answer your investigative question.

**Part 2**

Individually, carry out your experiment and record your data in a suitable format.

**Part 3**

On your own, analyse the data and produce a report by:

* drawing at least two appropriate displays, including the probability distribution, that show different features of the data in relation to the investigative question;
* developing appropriate statistics from the data;
* **commenting on features** and patterns of the distribution, for example, shape, spread, unusual features, and summary statistics for each of the data displays;
* discussing your prediction in relation to the experimental probability distribution;
* writing a conclusion about your findings that **answers your investigative question** and provides supporting evidence for this answer using your experimental data.