**This Learning Progression begins at Level 1 of the Victorian Curriculum and concludes at Level 8. Five progressions are provided in this span.**

*Description:* This Learning Progression describes how a student becomes increasingly able to use the language of chance and the numerical values of probabilities when determining the likelihood of an event. Our modern understandings of probability date from the second half of the 17th century with the analysis of games of chance. Many of the basic ideas of probability can run contrary to common beliefs. People often need to overcome strongly held beliefs to recognise how what has happened in the past does not influence what will happen in the future with independent events.

*Related Numeracy Learning Progressions*: This Learning Progression is related to *Interpreting and representing data*.

*Details of progression provide nuanced and detailed descriptions of student learning – what students can say, do, make or write. Examples of student learning in each progression are not hierarchical, nor are they to be used as a checklist.*

|  |  |  |
| --- | --- | --- |
| **Victorian Curriculum Level 1** |  | **Victorian Curriculum Level 8** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Describing chance** The student:* describes everyday occurrences that involve chance
* recognises that some events might or might not happen
* makes predictions on the likelihood of simple, everyday occurrences.
 | **Comparing chance** The student:* explains why one result is more likely than another (if there are more blue than red marbles in a bag, blue is more likely to be selected)
* explains why outcomes of chance experiments may differ from expected results.
 | **Fairness** The student:* identifies all possible outcomes from simple experiments
* explains that 'fairness' of chance outcomes is related to the equal likelihood of all possible outcomes
* identifies unfair elements in games that affect the chances of winning (having an unequal number of turns)
* recognises that all probabilities must lie between impossible (no chance) and certain.
 | **Probabilities** The student:* expresses probability as the number of ways an event can happen out of the total number of possibilities
* describes probabilities as fractions of one (the probability of an even number when rolling a dice is ½).
 | **Calculating probabilities** The student:* describes the likelihood of events using a fraction or percentage
* interprets the odds of an event (odds of 5:1, the odds against rolling a 6, means a wager of $1 stands to win $5)
* explains how probability is not affected by previous results (if a coin is tossed and heads have come up 7 times in a row, it is still equally likely that the next toss will be heads or tails)
* recognises that the chance of something occurring or not occurring has a total probability of 1 (the probability of rolling a 3 is 1/6 and the probability of not rolling a 3 is 5/6)
* determines the probability of compound events (tossing 2 coins)
* compares expected and actual results of a chance event.
 |

Student learning in numeracy has links beyond Mathematics in the Victorian Curriculum F–10. Teachers are encouraged to identify links within their teaching and learning plans.