

ROCK PAPER SCISSORS: Sequence Overview

Australian Curriculum: Mathematics (Year 6)

ACMSP144: Describe probabilities using fractions, decimals and percentages.

ACMSP145: Conduct chance experiments with both small and large numbers of trials using appropriate digital technologies.

ACMSP146: Compare observed frequencies across experiments with expected frequencies.

Summary of lessons

Who is this Sequence for?

This sequence is for students who:

- are familiar with calculating the probabilities of different events
- are ready to apply their understanding of fractions to express the probability of events occurring

Lesson 1: How Random Is It?

Students determine their chances of winning Rock Paper Scissors, then test their chances by playing against another player and in a simulation card/dice game. Students look at the psychological aspect of the game and recognise that there is a strategy to increase your chance of winning.

Lesson 2: Which Is Better?

Students calculate the probabilities of winning the game 'Rock Paper Scissors Lizard Spock' and compare it to the chances of winning Rock Paper Scissors. They decide which is the better game to play in different circumstances.

We value your feedback after these lessons via our website.

Reflection on this sequence

Rationale

Randomness is a central idea in statistics and probability.

Randomness in statistics must be separated from the colloquial use of the word. In statistics, a random process - such as drawing names from a hat - requires that all possibilities have an equal chance of being selected.

(AAMT, Top Drawer Teachers)

A random sample requires that each possible sample of the same size from the population has the same chance of being selected. This creates a fair, unbiased sample and is essential if we are looking for a meaningful explanation for our data. This sequence explores randomness in the games 'Rock Paper Scissors' and 'Rock Paper Scissors Lizard Spock'. In these games, a player's choice of moves are generally influenced by whether they won or lost the previous round—so while the results may appear random, they are not. Students see that a game with dice, cards or against the computer produces more random results.

reSolve Mathematics is Purposeful

- This sequence builds students' understanding of randomness which is a central idea in statistics and probability through a well-known game.

reSolve Tasks are Inclusive and Challenging

- It is anticipated that all students would be familiar with the game Rock Paper Scissors thus providing a common experience from which to draw.
- Students are challenged through an analysis of how a win or loss influences a player's choice of moves.

reSolve Classrooms Have a Knowledge Building Culture

- Students collate data from across the class to explore the probability of outcomes and to look for any regularities and patterns that may exist.