

Learning Intentions

- To learn how to calculate the expected value of an experiment.
- To learn how to apply expected value calculations to Yahtzee and scratch and win lottery tickets.

Questions

1. Play Yahtzee with your partner for a while. As you play, write down the dice that you roll. Find a roll that forced you to make a decision that you are unsure of. You will now analyze this roll mathematically.

Reasoning and modelling: Proficient if analysis covers one roll of one die.

Reasoning and modelling: Extending if analysis covers one roll of 2 dice, or two rolls of one die.

- a. What are the dice?
 - b. How many rolls are left?
 - c. What positions on the scorecard have been used up?
 - d. What is the current value of your hand?
 - e. Draw either a probability tree or a probability chart showing the possible outcomes.
 - f. What is the expected value of your hand?
2. Go to the BC Lottery Corporation (BCLC) webpage at <https://www.bclcretailerhub.com/scratch-and-win/upcoming-and-recently-launched.html> and choose one of the scratch and win tickets.
 - a. What are the prizes and probability of winning each prize?
 - b. Draw a probability tree for the ticket.
 - c. What is the probability of winning any money at all?
 - d. What is the probability of not winning any money at all?
 - e. Why doesn't BCLC give all the prize money out to a single jackpot winner?

Assessment

Curricular Competency	Insufficient Evidence	Emerging	Developing	Proficient	Extending
Reasoning and modelling (probability trees)					
Understanding and solving (expected values)					
Communicating					
Connecting and reflecting (q2e)					