

Christmas Stocking Probability Game

By Top Ten Mathematics



1. Give each student a stocking or 'feely' bag, or students can even just use their school hats upside-down, holding the hat up high so that the other student cannot see inside on their turn.
2. Students fill the bag/hat with 10 Christmas coloured or themed objects, or anything! Some must be repeats (for example, 3 green pompoms, 4 red and white pipe cleaners made into candy canes, 2 lollies and 1 figurine).
3. Instruct students: "You can take turns to pull out an object, make tally marks, then put it back. You are going to have 10 turns each, so 20 pulls. What do you think the results will be for each item?" Write a predicted number next to a sketch of each.
4. Take the turns and tally both (their and their partner's turns), recording how many times each item was pulled out. Compare this to their predictions and discuss whether they were right or not, and why. What chance did that object have as a fraction or probability language?
5. Swap stockings with another pair and repeat. For variation, change the number of pulls. Is it easier to predict with more or less pulls?

Support: Focus on predicting which object will appear the most from the bag.

Extension: Use fractions, percentages and decimals to record both their predictions (theoretical probability) and what actually occurred (experimental probability). To convert a fraction to a percentage or decimal, think \$1 – if the stocking had all been worth \$1, what would that type of item be worth? That is the percentage chance (out of 100 cents) or decimal chance (out of 1 whole). Change the number of objects, so that it is not out of 10 – challenge students to still record the fraction and matching percentage/decimal, as well as the correct probability language for each chance.