

Assess your learning - Counting & Probability

Where is your learning at? Be Honest!	 red	 orange	 green	Revised for 10 Week Exam	Revised for Summer exam
Can you answer the following questions?					
I can use $n!$ to solve problems involving permutations/arrangements. E.g. How many ways of rearranging the letters of the word MATHS?					
I can use nCr to solve problems involving combinations/selections. E.g. How many ways to choose a committee of 3 men and 2 women from a panel of 10 men and 12 women?					
I can use my calculator to evaluate nCr . E.g. What is 7C_2 using a calculator?					
I can calculate the probability of an event occurring. E.g. A bag with 10 balls, contains 7 red and 3 white. What is the probability of drawing out a red ball?					
I can calculate the relative frequency of an event occurring. E.g. Joe Canning scores 130 frees out of 280 conceded. What is the relative frequency of him scoring a free?					
I can use Venn Diagrams to solve probability problems. E.g. In a class of 30 students, 18 play hurling and 10 play soccer and 5 play neither. A student is selected at random. What is the probability that they play both?					
I can explain what is meant by "Mutually Exclusive" events and give an example.					
I can write down the formula for calculating $P(A B)$ i.e. the probability of A given B					
I can solve problems involving conditional probability using the previous formula. E.g. In a class of 30 students, there are 17 boys and 13 girls. 7 of the boys play soccer and 8 of the girls play it. A student is selected at random from the class. What is the probability that they play soccer, given that they are a girl?					
I can define the term Independent Events					

<p>I can prove if two events are independent or not. E.g. A red six-sided die and a blue six-sided die are rolled. X is the event that the score on the red die is 1 and Y is the event that the total on the two dice is 7. Investigate if X and Y are independent.</p>													
<p>I can solve problems involving successive events. E.g. A bag contains 3 red beads, 5 blue beads and 2 green beads. If 3 beads are picked at random and not replaced, find the probability that all 3 are blue.</p>													
<p>I can calculate the expected value of a probability distribution. E.g. The number of hybrid cars per household in a survey of 100 houses is shown below. Find the expected value for the number of hybrids in a house picked at random.</p> <table border="1" data-bbox="231 790 659 902"> <tr> <td>No. of hybrids</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>Frequency</td> <td>20</td> <td>70</td> <td>10</td> </tr> </table>	No. of hybrids	0	1	2	Frequency	20	70	10					
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<p>I can use the expected value to decide if a game/bet is bad, good or fair. E.g. Someone offers you a bet, in which you have to pay €2 to play. You have to pick a card from a deck of cards. If you choose a King you win €30, a diamond you win €3. Is it a good bet or not? Explain your answer using expected value.</p>													
<p>I can list the conditions necessary for Bernoulli trials.</p>													
<p>I can solve problems involving Bernoulli Trials. E.g. A fair die is rolled until two 5s appear. Find the probability that this will take 8 rolls.</p>													
<p>I can use the Tables to find certain areas under a normal distribution curve. E.g. Find $P(-1.5 \leq z \leq 1.8)$</p>													
<p>I can solve problems involving normal distributions, z scores and probability. E.g. The heights of men in a country are normally distributed with a mean of 160 cm and a standard deviation of 5 cm. Find the probability that a randomly selected person will have a height greater than 175 cm.</p>													