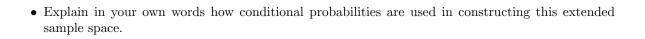
## The information contained in non-universal A joined up approach to distributions A joined up approach to teaching and learning mathematics

•	Complete the following sentence: To find the information content of a non-uniform distribution, $p$ , we generate an extended sample space in which



• Explain in your own words the steps in the derivation presented in the video that were taken in going from  $I(p \otimes q) = I(p) + I(q)$  to  $I(p \otimes q) = I(p) + \sum_i p_i I(w_i)$ 

 $\bullet$  Explain what the symbol  $w_i$  represents in the formula in the previous question.

## The information contained in non-un MatheNET distributions A joined up approach to teaching and learning mathematics

•	State the formula for the information contained in a non-uniform probability distribution, $p$ and explain the final steps involved in going from the formula $I(p \otimes q) = I(p) + \sum_i p_i I(w_i)$ to this result
•	A three sider spinner has edges labeled 1, 2 and 3 and an equal probability of landing on each o its three sides. Calculate the information contained in the associated probability distribution.
•	Now suppose that the spinner has a probabilities of $\frac{1}{7}$ , $\frac{2}{7}$ and $\frac{4}{7}$ of coming up with a 1, 2 or a respectively. Calculate the information contained in the associated probability distribution.