Knowledge Rich Curriculum Plan

Year 11 Foundation+ Probability

Lesson/Learning Sequence	Intended Knowledge: _Students will know that…_	Tiered Vocabulary	Prior Knowledge: _In order to know this, students need to already know that…_	Steps To Success
To learn how to draw and use a tree diagram for independent events	• Students will know how to show given information on a probability tree diagram. • Students will know how to complete probabilities using both decimals and fractions to represent probabilities • Students will know construct a probability tree for multiple events • Students will know how to use a probability tree diagram to represent outcomes of combined independent events (with replacement) • Students will know how to use tree diagrams to calculate the probability of two combined independent events by multiplying across the branches (this can either be fractions or decimals)	**Independent** – not subject to control by anything else **Independent Events** – Two events are independent if the occurrence of one event does not affect the chances of the occurrence of the other event	• Students will need to know that the probability of all possible outcomes for an event add to 1 • Students will need to know how to multiply decimals • Students will need to know how to multiply fractions	**Step 1:** Draw your first branches, you need as many lines as there are outcomes for the event. **Step 2:** Write each of the different outcomes at the end of each of the branches. **Step 3:** Write the probabilities on the branches for the tree diagram. Remember the probabilities of all outcomes should add up to 1. **Step 4:** Draw out the branches for the next event and assign the probabilities in the same way. **Step 4:** Identify the outcome you want to find the probability of list all the possible ways that the outcome can be achieved. **Step 5:** Calculate the probability for each way that it can be achieved by multiplying the probabilities on the branches. **Step 6:** If there was more than one way of achieving the outcome then add all of the probabilities together once you have calculated them all.
To learn how to complete and use a tree diagram for dependent events	• Students will understand how and why the outcome of one event can impact the outcome of a subsequent event • Students will know how to complete and construct probability trees for dependent events • Students will know how to use probability trees to calculate the probabilities of combined events for dependent events	**Dependent** – determined by **Conditional/ Dependent Events** – events whose outcomes rely on that of another event	• Students will need to know how to multiply decimals • Students will need to know how to multiply fractions	**Step 1:** Draw the appropriate number of branches for the first event and write one of the different possible outcomes at the end of each branch. There should be one branch for each outcome. **Step 2:** Draw the appropriate number of branches from each of the initial branches for the second event and write one of the different possible outcomes at the end of each branch. If there are more than two events you will need to continue adding branches to the end of each outcome until you have represented all events. **Step 3:** Assign your probabilities to the first branches you drew, taking care to read the question carefully **Step 4:** Check whether the events are **independent**, **dependent** or **mutually exclusive**

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				Step 5: Assign the appropriate probabilities to the branches for the next event (and any subsequent events). Remember, if the events are dependent you will need to adjust the probabilities to take this into account.
To learn how to create and use a Venn diagram to determine probabilities	• Students will know how to put information into a Venn diagram and use it to determine probabilities • Students will know how to construct appropriate Venn diagrams to sort information • Students will know how to interpret a Venn diagram to find probabilities	**Venn Diagram** - a diagram representing mathematical or logical sets as circles within an enclosing rectangle (the universal set), common elements of the sets being represented by intersections of the circles. **Intersection** – A point, area or line that is common to two or more things. For a Venn diagram the intersection is the overlap between the two circles	• Students should know how to sort information into a simple Venn diagram	
To learn how to interpret and use set notation	• Students will know how to use very simple set notation to describe parts of the Venn diagram e.g. (A), (B), (A'), (B') • Students will know how to use union (A ∪ B) and intersection (A ∩ B) notation • Students will know how to find probabilities using union and intersection notation	**Universal Set** - a set which contains all objects, including itself **Union** - The set made by combining the elements of two sets. So the union of sets A and B is the set of elements in A, or B, or both.	• Students should know how to sort information into a Venn diagram	