## Year 10 Maths Learning Journey

## Spring Term 6

Proportion and proportional change: Probability

| Core knowledge | Reference |
| :--- | :--- |
| Know how to add, subtract and multiply fractions (R) <br> "Why do we ensure fractions have a common denominator before adding or subtracting?" | $\underline{\text { WORKSHEET }}$ |
| Find probabilities using equally likely outcomes (R) <br> "What makes events equally likely to occur?" | WORKSHEET |
| Use the property that probabilities sum to 1 (R) <br> "What does the word 'complement/union/intersect' mean? Where is this represented on <br> the Venn diagram?" | $\underline{\text { WORKSHEET }}$ |
| Using experimental data to estimate probabilities <br> "Why is experimental probability different from theoretical probability?" |  |
| Find probabilities from tables, Venn diagrams and frequency trees <br> "How do we know which cell value is the denominator when calculating a probability from a <br> two-way table?" | $\underline{\text { WORKSHEET }}$ |
| Construct and interpret sample spaces for more than one event (R) <br> "How many outcomes will there be in total? How do we know?" | $\underline{\text { WORKSHEET }}$ |
| Calculate probability with independent events <br> "Give an example of a pair of independent events. Give an example of a pair of events that <br> aren't independent" | $\underline{\text { WORKSHEET }}$ |
| Use tree diagrams for independent events <br> "What are the different methods for finding the probability of 'at least one'? Which is the <br> most efficient?" | $\underline{\text { WORKSHEET }}$ |
| $\underline{\text { Use tree diagrams for dependent events }}$"Give me an example of two events which are dependent." |  |
| $\underline{\text { Construct and interpret conditional probabilities (tree diagrams) (H) }}$"Why do the probabilities change between trials? How do they change?" |  |
| Construct and interpret conditional probabilities (Venn diagrams and two-way tables) (H) <br> "What does 'given' mean? Which part of the Venn diagram/two-way table does this refer <br> to" | $\underline{\text { WORKSHEET }}$ |

## Learning Checkpoints

| LC Title | Completed | Dirt |
| :--- | :--- | :--- |
| Percentages and interest |  |  |

## Key Vocabulary:

Array: An arrangement of objects, pictures, or numbers in rows and columns
Conditional probability: the probability of an event (A), given that another (B) has already occurred.
Denominator: In the notation of common fractions, the number written below the line
Dependent events: Two events are dependent when the outcome of the first event influences the outcome of the second event.

Equally likely: In an experiment (trial in statistics) the result is the outcome.
Estimate: To arrive at a rough or approximate answer by calculating with suitable approximations for terms Event: A possible outcome of a statistical trial, for example 'heads' when a coin is tossed.

Exact value: Exact value is where you cannot estimate the value you must be precise
Expectation: Known as the product of the probability of an event occurring, denoted $P(x)$, and the value corresponding with the actual observed occurrence of the event.

Expected value: In probability theory, the expected value is a generalization of the weighted average.
Frequency trees: a way of organising information. They can then be used to solve probability problems.
Given: The term "given" in probability is associated with conditional probability. It simply means the probability of an event, if the event has already happened.

Independent events: Two events are independent if the occurrence of one event does not affect the chances of the occurrence of the other event.

LCM - the common multiple of two of more numbers which has the least value
Numerator: in the notation of common fractions, the number written on the top - the dividend (the part that is divided).

Outcomes: The result of a statistical trial
Product: The result of multiplying one number by another.
Relative frequency: How often something happens divided by all outcomes.
Sample space: The sample space is the set of all possible outcomes of a trial. The sum of all the probabilities for all the events in a sample space is 1.

Show: To show is to use numbers to demonstrate a certain property
Simplest form: A fraction that has been reduced fully.
Systematic: Having a pattern or order to the way you work
Tree diagram: a way of showing combinations of two or more events. Each branch is labelled at the end with its outcome and the probability is written alongside the line.

Two way tables: A table in which the rows represent the categories for one category variable, the columns represent the categories of a second category variable


