Mathematics & Statistics Know: Content and Concepts

PHASE TWO

Number | Mātauranga tau

Students know that in our **number system** each place value is a power of 10, and this continues infinitely. To the right, the system continues beyond ones, to create decimals (tenths, hundredths, thousandths); the decimal point is placed between the ones column and the tenths column. **Estimation and rounding** support checking the reasonableness of solutions of operations involving whole numbers, fractions, and decimals.

Students know that to **calculate expressions** that have more than one operation, operations inside brackets (grouped together) are done first, then powers or exponents. If there are multiplication and division, these are done in left-to-right order; addition and subtraction are also done in left-to-right order. Students use the mnemonic GEMA: grouped, exponents, multiplication, addition. Division can be partitive (the number of shares is known) or quotative (the size of the shares is known).

Students also know that **fractions** can represent one number divided by another, operate on quantities, and be larger than 1. Improper fractions can also be written as a mixed number represented as a whole number and a fraction, combined with a hidden addition. In simplified fractions, the numerator and denominator have no common factors; if the denominator of a simplified fraction is 1, then it can be written as a whole number. **Decimals** are fractions that have powers of 10 as their denominators and that can be written as numbers using a decimal point. A **percentage** is a fraction with a denominator of 100.

Algebra | Taurangi

Students know the properties of operations: thecommutative and associative properties only work for addition and multiplication (not for subtraction and division), the associative property applies to addition and multiplication, and the distributive property applies to multiplication over addition and subtraction.

Students know that the equal (=) and inequality (<, >) signs show relationships and that applying the same operation to both sides of an equation preserves the balance of the equation.

Students know that in a pattern, the relationship between the ordinal position and the corresponding element can be used for finding the pattern rule. Any element can be found by knowing the position, and any position can be found from the element. Tables and XY graphs provide a way of organising the positions and elements of a pattern to reveal relationships or rules. An algorithm is an ordered list of instructions for solving a problem.

Measurement | Ine

Students know that, like our place-value number system, the **metric measurement system** is based on powers of 10 and that appropriate metric units are used to quantify length, area, volume, capacity, mass (weight), temperature, and duration. Measurements can include whole units and parts of units. Different **measurement tools and scales** use different-sized units, and the unit must be recorded with the amount. If a measurement starts at 0, the point on the scale where it ends tells us the measurement. Angles measure parts of a full turn and use the unit of degrees.

Geometry | Āhuahanga

Students know that two- and three-dimensional shapes have consistent **properties** that can be used to define, compare, classify, predict, and identify relationships between shapes. Shapes can be **transformed** by rotation, reflection, translation, and resizing (when they are enlarged or reduced). Lines of symmetry can be horizontal, vertical, and diagonal. **Three-dimensional shapes** can be composed of connected two- or three-dimensional shapes.

Students also know that **position** can be described using known environmental features and signs from the natural world. Maps can use grid references to specify the position of locations, scales to show distances, and connections to show pathways.

PHASE TWO

Statistics | Tauanga

Students know that data about people and the natural world must be collected, used, and stored carefully. The **statistical enquiry cycle** (PPDAC) can be used in **summary, comparison, and time-series investigations.** A comparison investigation compares similarities and differences for a variable across two or more groups, and a time-series investigation considers a variable that changes over time. **Numerical variables** can be counted or measured; discrete numerical variables are counted, continuous numerical variables are measured. A **prediction** or assertion involves thinking about what data will show before it is collected or analysed. Data is not always accurately recorded; it needs to be checked for errors and may need correcting. Alternative **data visualisations** for the same data can lead to different insights.

Probability | Tūponotanga

Students know that the statistical enquiry cycle (PPDAC) can be used for **chance-based investigations.** Probabilities and the language of probability are associated with values between 0 or 0% (impossible) and 1 or 100% (certain), can be used to describe situations that involve **uncertainty,** and help make decisions. The **probability of an outcome** in a chance-based investigation is the number of times the outcome occurs divided by the total number of outcomes, where all possible outcomes can be listed (theoreticalprobability), or the relative frequency of the outcome from a probability experiment (estimated probability).

Phase Two Number			
Number Structure			
Year 4	**Year 5**	**Year 6**	**Teaching Methods/Representations**
count to and within 1,000, from any multiple of 100, forwards and backwards in 25s and 50s			› patterns in a 100s board and 1,000s book › choral counting, captured and recorded on the board
recognise the base ten structure of numbers up to 10,000	**recognise the base ten structure of numbers up to 100,000**	**recognise the base ten structure of numbers up to 1,000,000**	› place-value (PV) houses and materials
identify, read, write, compare, and order whole numbers up to 10,000	**identify, read, write, compare, and order whole numbers up to 100,000**	**identify, read, write, compare, and order whole numbers up to 1,000,000**	› marked number lines, PV houses, materials
	identify factors of numbers up to 100	identify square numbers and factors of numbers up to 125	› arrays, lists of factor pairs, multiplication charts
use the mathematical processes to: – connect with metric units that are powers of 10, and with decimal place value			
	use the mathematical processes to - investigate factors and multiples	use the mathematical processes to - investigate factors and square numbers	

Phase Two Number

Operations

Year 4	Year 5	Year 6	Teaching Methods/Representations
use rounding and estimation to predict and to check the reasonableness of calculations	use rounding and estimation to predict and to check the reasonableness of calculations	**use rounding and estimation to predict and to check the reasonableness of calculations**	› known facts › benchmarks
round whole numbers to the nearest thousand, hundred, or ten, and round tenths to the nearest whole number	round whole numbers to a specified power of 10, and round tenths and hundredths to the nearest whole number	**round whole numbers to a specified multiple of powers of 10, and round tenths and hundredths to the nearest whole number or one decimal place**	› number lines
add and subtract 2- and 3-digit numbers	**add and subtract whole numbers up to 10,000**	add and subtract any whole numbers	› materials › horizontal and vertical methods
multiply a 2-digit by 1-digit number and two 1-digit whole numbers (e.g., 5 × 46; 8 × 7)	**multiply a 3-digit by 1-digit number and two 2-digit whole numbers (e.g., 6 × 248; 37 × 84)**	multiply multi-digit whole numbers (e.g., 54 × 112)	› jumps on a number line (year 4) › area-model and vertical methods
divide whole numbers by a 1-digit divisor, with no remainders (e.g., 65 ÷ 5)	divide whole numbers by a 1-digit divisor, with a remainder (e.g., 83 ÷ 5 = 16, remainder 3)	divide whole numbers by a 1-digit divisor, with a remainder (e.g., 198 ÷ 7; 4154 ÷ 8)	› diagrams, known facts (year 4) › jumps on a number line › vertical method
		use the order of operations rule GEMA with grouping, addition, subtraction, multiplication, and division	› step-by-step layouts with only one equal sign per line

use the mathematical processes to:
– connect multiplication, division, and factors with area, volume, and perimeter
– connect multiplication and division with proportional reasoning
– generalise the use of inverse operations and the commutative and distributive properties, to check findings
– investigate comprehending and solving word problems, deciding which operation to use and why
– explain and justify findings, by connecting to estimates and other checking methods

Phase Two Number			
Rational Numbers			
Year 4	**Year 5**	**Year 6**	**Teaching Methods/Representations**
identify, read, write, and represent tenths as fractions and decimals	**identify, read, write, and represent tenths and hundredths as fractions and decimals**	**identify, read, write, and represent fractions, decimals (to two places), and percentages**	› equivalence materials, number lines, decimal PV houses
compare and order tenths as fractions and decimals, and convert decimals to fractions	**compare and order tenths and hundredths as fractions and decimals, and convert decimals to fractions**	**compare and order fractions, decimals (to two places), and percentages and convert decimals, and percentages to fractions**	› double number lines › blank 100s boards
divide whole numbers by 10 to make decimals	divide whole numbers by 10 and 100 to make decimals and whole numbers	**multiply and divide numbers by 10 and 100 to make decimals and whole numbers**	› PV houses
for fractions with related denominators of 2, 4, and 8, 3 and 6, or 5 and 10: – compare and order the fractions – identify when two fractions are equivalent – represent the fractions in their simplest form	for fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, or 100: – compare and order the fractions – identify when two fractions are equivalent – represent the fractions in their simplest form	**for fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, or 100:** **– compare and order the fractions** **– identify when two fractions are equivalent** **– represent the fractions in their simplest form**	› fraction walls (equivalence materials) and benchmarks, to show the relationship between two denominators for simplifying › number lines, for comparing and ordering
convert, using number lines, between improper fractions and mixed numbers for fractions with denominators of 2, 3, 4, 5, 6, and 10	convert between improper fractions and mixed numbers for fractions with denominators up to 10	convert between improper fractions and mixed numbers	› fraction walls and tiles › number lines
find a unit fraction of a whole number, using multiplication or division facts and where the answer is a whole number (e.g., 1/5 of 40)	find a fraction of a whole number, using multiplication and division facts and where the answer is a whole number (e.g., 2/3 of 24)	**find a fraction or percentage of a whole number where the answer is a whole number (e.g., 3/8 of 48; 30% of $150)**	› bar models › benchmarks (years 5–6)
identify, from a unit fraction part of a set, the whole set	identify, from a fractional part of a set, the whole set	identify, from a fractional part of a set, the whole set	› discrete materials (year 4) › bar models
add and subtract fractions with the same denominators to make up to one whole or less than one whole	add and subtract fractions with the same denominators, including to make more than one whole	add and subtract fractions with the same or related denominators (e.g., 1/4 + 1/8)	› fraction tiles, number lines (years 4–5) › fraction tiles and number lines, to demonstrate renaming fractions with related denominators (year 6)

Phase Two Number

Rational Numbers (continued)

Year 4	Year 5	Year 6	Teaching Methods/Representations
add and subtract decimals to one decimal place	add and subtract decimals to two decimal places	add and subtract whole numbers and decimals to two decimal places	› horizontal methods (including number lines) and vertical methods
use doubling or halving to scale a quantity (e.g., to double or half a recipe)	use known multiplication facts to scale a quantity	use known multiplication and division facts to scale a quantity	› diagrams, known facts, horizontal and vertical methods

use the mathematical processes to:
– connect equivalent fractions and decimals
– connect decimal place value and operations with whole number place value and operations
– connect decimals with measurement
– investigate appropriate situations
– explain and justify equivalent fractions
– convert between mixed numbers and improper fractions
– generalise that multiplying or dividing a number by a power of ten changes the position of the digits on a place value chart (years 5–6)

Financial Maths

Year 4	Year 5	Year 6	Teaching Methods/Representations
make amounts of money using dollars and cents (e.g., to make 3 dollars and 70 cents)	represent money values in multiple ways using notes and coins	solve problems involving purchases (e.g., ensuring they have enough money) create simple financial plans (e.g., shopping lists, a family budget)	› play money › spreadsheets › tables › written and mental methods.
estimate and calculate the total cost and change for items costing whole dollar amounts	estimate the cost to the nearest dollar of items costing dollars and cents, and the change from the nearest ten dollars	calculate 10%, 25%, and 50% of whole dollar amounts (e.g., 50% of $280)	› known facts and rounding › bar models and benchmarks, to find percentages (year 6) › division, then subtracting from the whole (year 6) › written and mental methods.

use the mathematical processes to:
– connect to rounding, addition and subtraction of decimals to two places, and calculating a percentage of a whole amount
– investigate making amounts of money, using different denominations
– investigate financial plans and decisions.

Phase Two Algebra			
Generalising Number Properties			
Year 4	**Year 5**	**Year 6**	**Teaching Methods/Representatives**
use inverse operations to solve multiplication and division problems	use inverse operations to solve multiplication and division problems	**use inverse operations to solve multiplication and division problems**	› families of facts › bar models › equations, demonstrating working backwards
explore the associative property with addition and multiplication	explore why the commutative and associative properties do not work for subtraction and division	**use commutative, associative, and identity properties, deciding which operations they work for and which they don't**	› array and area models for the commutative and associative properties
recall multiplication and corresponding division facts for 4s, 6s, 9s,and 10s	**recall multiplication facts to 10 × 10 and corresponding division facts**	recall multiplication facts to at least 10 × 10 and corresponding division facts	› families of facts, multiplication grids, arrays, number lines
explore the distributive property of multiplication over addition (e.g., 7 × 8 = 7 × (5 + 3) = (7 × 5) + (7 × 3)	explore the distributive property of multiplication over addition and subtraction (e.g., 6 × 18 = 6 × (20 – 2) = (6 × 20) – (6 × 2)	**use the distributive, commutative, and associative properties**	› arrays, area models
use the mathematical processes to: – generalise multiplication problems beyond recalled facts, by looking for patterns – investigate patterns in the multiples of times tables			

Phase Two Algebra

Equations & Relationships

Year 4	Year 5	Year 6	Teaching Methods/Representations
form and solve true or false number sentences and open number sentences involving multiplication and division, using understanding of the equal sign (e.g., 5 × _ = 20; _ ÷ 3 = 6)	**form and solve true or false number sentences and open number sentences involving all four operations (e.g., 674 + 56 – k = 671)**	**form and solve true or false number sentences and open number sentences involving all four operations, using equality or inequality (e.g., 8 × 7 < 8 × 5 + 8 (T or F?)**	› things that balance › known facts › inverse operations › equal and inequality symbols
recognise and describe the rule for a growing pattern using words, tables, and diagrams, and predict further elements in the pattern	use tables to recognise the relationship between the ordinal position and its corresponding element in a growing pattern, develop a rule in words, and predict further elements in the pattern	**use tables, XY graphs, and diagrams to recognise relationships in a linear pattern, develop a rule in words that identifies the constant amount of change between consecutive elements or terms in the pattern, and predict further elements in the pattern**	› visually growing patterns, recording the position and term for each element in the sequence
use the mathematical processes to: – investigate inverse operations to find missing numbers in equations and growing patterns (e.g., tivaevae) – explain and justify the relationship between the ordinal position and its corresponding element to find a pattern's rule.			

Algorithmic Thinking

		create and use algorithms for making decisions that involve clear choices (e.g., formulating a familiar routine as a set of step-by-step instructions)	› flowcharts › numbered instructions › step-by-step instructions › diagrams,
		use the mathematical processes to: – connect to algorithms for operations – investigate situations that involve making decisions.	

Phase Two Measurement

Measuring

Year 4	Year 5	Year 6	Teaching Methods/Representations
develop personal benchmarks for estimation and measure length, area, mass (weight), capacity, and duration, using appropriate metric units	estimate and then accurately measure length, mass (weight), capacity, temperature, and duration, using appropriate metric units or a combination of units	**estimate and then accurately measure length, mass (weight), capacity, temperature, and duration, using appropriate metric units or a combination of units**	› rulers, scales, timers, thermometers, measuring jugs (always ensuring accurate use)
use appropriate units to describe length, mass (weight), capacity, and time	use the appropriate unit and tool for the task and the attribute being measured	select and use the appropriate unit and tool for the task and the attribute being measured	› units that match the situation
use the metric measurement system to explore relationships between units	use the metric measurement system based on powers of ten to explore relationships between units, including benchmark fractions and decimals	**convert between common metric units for length, mass (weight), and capacity; and use decimals to express parts of wholes in measurements**	› PV and decimal PV houses
recognise that angles can be measured in degrees, using 90, 180, and 360 degrees as benchmarks	describe an angle using the terms acute, right, obtuse, straight, and reflex, by comparing the angle with benchmarks of 90, 180, and 360 degrees	**visualise, measure, and draw (to the nearest degree), the amount of turn in angles up to 360 degrees**	› protractors, to demonstrate measuring and drawing (year 6)

use the mathematical processes to:
– connect measuring with place value and decimals, angles with fractions of a circle and degrees of turn, and benchmark fractions with measurements (e.g.,500ml = 1/2 L)
– investigate, using practical measuring situations (e.g., using scaled measurement instruments, reading angles using geometric software and protractors)
– explain and justify the use of appropriate metric units for a given situation

Phase Two Measurement

Perimeter, area and volume

Year 4	Year 5	Year 6	Teaching Methods/Representations
visualise, estimate, and calculate: – the perimeter of polygons using metric units – the area of shapes covered with squares or half squares – the volume of shapes filled with centicubes, taking note of layers and stacking	visualise, estimate, and calculate: – the perimeter of polygons – the area of shapes covered with squares or partial squares – the volume of rectangular prisms, taking note of layers and stacking	**visualise, estimate, and calculate the area of rectangles and right-angled triangles and the volume of rectangular prisms, by applying multiplication**	› square grids › rulers › 2D shapes › written methods with clearly laid out working.
use the mathematical processes to: – connect area with multiplication arrays and the commutative property of multiplication – generalise the formula for finding the area and volume of rectangles and rectangular prisms – investigate practical contexts for finding perimeter, area, and volume			

Time

	describe the differences in duration between units of time (e.g., days and weeks, months and years)		› word problems, for converting weeks and months into days and vice versa
tell the time to the nearest 5 minutes, using the language of minutes past the hour and to the hour	solve duration-of-time problems involving ‘am’ and ‘pm’ notation	**convert between units of time and solve duration-of-time problems, in both 12- and 24-hour time systems**	› digital and analogue clocks (year 4) › subtracting time to calculate duration › inclusive counting (e.g., for the number of days between now and next Tuesday, start counting from today) (years 5–6)
use the mathematical processes to: – connect units of time to fractions – investigate calendars, timetables, and schedules to work out the duration between events, or the start and end times for events.		use the mathematical processes to: – connect units of time to fractions – investigate calendars, timetables, and schedules to work out the duration between events, or the start and end times for events.	

Phase Two Geometry

Shapes

Year 4	Year 5	Year 6	Teaching Methods/Representations
identify, classify, and describe the properties of polygons (including triangles and quadrilaterals) using properties of shapes, including line and rotational symmetry	identify, classify, and describe the properties of: – regular and irregular polygons, using edges, vertices, and angles – prisms, using the cross section, faces, edges, and vertices	**classify, identify, and explain similarities and differences between:** **– 2D shapes, including types of triangle** **– prisms and pyramids**	› a range of 2D and 3D shapes, including tactile materials, diagrams, and digital tools
compare and classify angles in 2D shapes equal to, smaller than, or larger than a right angle	identify and describe parallel and perpendicular lines, including those forming the sides of polygons	**identify and describe the interior angles of triangles and quadrilaterals**	› angle benchmarks (year 4) › diagrams › protractors › notation › vocabulary (obtuse, acute, reflex, and right angles).
use the mathematical processes to: – connect angles with turns – investigate the properties of triangles and polygons – investigate line and rotational symmetry – explain and justify whether lines are parallel and shapes are regular – explain and justify the value of unknown angles in triangles and quadrilaterals			

Spatial reasoning

identify the 2D shapes that compose 3D shapes (e.g., a triangular prism is made up of two triangles and three rectangles)	visualise and connect 3D shapes with their nets, their 2D diagrams, verbal descriptions of them, and the same shapes drawn from different perspectives	visualise and draw nets for rectangular prisms	› sketching and constructing 3D shapes › 3D shapes seen from different perspectives
visualise, predict, and identify which shape is a reflection, rotation, or translation of a given 2D shape	resize a 2D shape so that it is either bigger or smaller	**visualise, create, and describe 2D geometric patterns and tessellations using rotation, reflection, and translation, and identifying the properties of shapes that do not change**	› grids for resizing (year 5) › 2D shapes, squared paper, and tracing paper to predict and test transformations (years 4 & 6)
use the mathematical processes to: – connect enlargement with simple grid references or coordinates and with doubling and halving – generalise the properties of shapes that do not change when transformed – investigate nets that fold together, shapes that tesselate, and transformations			

Phase Two Geometry

Pathways

Year 4	Year 5	Year 6	Teaching Methods/Representations
use grid references to identify regions and to plot positions on a grid map interpret and describe pathways, including half and quarter turns and the distance travelled	interpret and create a grid map to plot positions and pathways, using grid references and directional language, including the four main compass points	interpret and create grid references and simple scales on maps use directional language, including the four main compass points, turn (in degrees), and distance (in m, km), to locate and describe positions and pathways	› maps with coordinates and compass points › graphs and maps on grids.

use the mathematical processes to:
– connect compass points with angles and turns, and grid references with graphing skills
– investigate different types of maps.

2B Extra exploratory work
- cross sections
- enlargements & reductions
- distortions

Phase Two Statistics

Problem

Year 4	Year 5	Year 6	Teaching Methods/Representations
investigate summary and comparison situations with categorical and discrete numerical data, using multivariate (2 or more variables) data, by – posing summary and comparison investigative questions that can be answered with data – making predictions or assertions about expected findings		**investigate summary, comparison, and time-series situations, using multivariate data to:** **– pose investigative questions that can be answered with data** **– make predictions or assertions about expected findings**	Demonstrate posing investigative questions, and support students to write their own. Demonstrate the use of context analysis diagrams to represent school-related issues.
use the statistical processes to investigate school-related issues of interest			

Plan

plan how to collect primary data to support answering an investigative question, including: – deciding on the group of interest – deciding the variable(s) for which data will be collected – taking account of ethical practices in data collection		plan how to collect primary data or how to use provided data, including identifying the variables of interest and, for provided data: – identifying who the data was collected from – identifying the original investigator's purpose for collecting the data – deciding if the source is reputable, by checking if any survey questions appear to be biased towards a particular point of view	Demonstrate asking evaluation questions about sources and ethical practices. Demonstrate how to represent data collection methods, who to measure, what to measure, and how to use a planning tool.
use the statistical processes to: – investigate topics of interest – explain and justify primary and secondary data, sensitive topics or questions, and ethical practices for data collection and use			

Data

use a variety of tools to collect data, and check for errors in the data	use a variety of tools to collect data, check for errors in the data, and correct errors by re-collecting the data, if possible	**describe information about variables in secondary data by using publisher-provided data dictionaries (e.g., how data was collected for them and possible outcomes for them)**	Demonstrate a range of data collection methods and what errors in data 'look like'. Demonstrate data collecting, conducting observations, and designing surveys and questionnaires.
use the statistical processes to investigate methods for collecting secondary data			

Phase Two Statistics

Analysis

Year 4	Year 5	Year 6	Teaching Methods/Representations
create and describe data visualisations for summary and comparison investigations that make meaning from the data, with statements including the name of the variable	create and describe data visualisations for summary and comparison investigations that make meaning from the data, with statements including the names of the variable and group of interest	**create and describe a variety of data visualisations that make meaning from the data, identifying features, patterns, and trends in context, including the variable and group of interest**	Demonstrate constructing and analysing data visualisations. Demonstrate representing data using dot plots, bar graphs, frequency tables, and time-series graphs.
use the statistical processes to: – investigate appropriate situations – explain and justify using 'I notice' statement about data visualisations, selecting the visualisation that best represents the data			

Conclusion

choose the best descriptive statements to answer the investigative question, reflecting on findings and how they compare with initial predictions or assertions	answer the investigative question, comparing findings with initial predictions or assertions and their existing knowledge of the world		Demonstrate making statements about data that match investigative questions. Demonstrate the use of concise statements.
use the statistical processes to: – connect statements with data visualisations to answer an investigative question, and to connect initial predictions or assertions with actual findings – investigate appropriate situations			

Statistical Literacy

check the statements that others make about data to see if they make sense, using information to clarify or correct statements where needed.	check and, if needed, improve the statements others make about data, including data from two or more sources.	**identify, explain, check, and, if needed, improve features in others' data investigations (e.g., survey questions, misleading information or statements).**	Demonstrate identifying misleading data, matching data visualisations, and checking the claims of investigations. Draw on data visualisations from a variety of sources.
use the statistical processes to investigate, interpret, critique, and check the claims made about data presented in tables, pictographs, bar graphs, line graphs, and pie charts.			

Phase Two Probability

Probability Investigations

Year 4	Year 5	Year 6	Teaching Methods/Representations
engage in chance-based investigations with equally likely outcomes by:	engage in chance-based investigations, including those with not equally likely outcomes, by:	engage in one-stage, chance-based investigations, including those with not equally likely outcomes, by:	Play games of chance (e.g., Biased Bingo). Demonstrate creating systematic records of possible outcomes. Demonstrate using data visualisations. Demonstrate representing outcomes using lists, tables, tree diagrams, tally charts, distributions, visualisations, words, and numbers.
posing investigative questions – anticipating what might happen – identifying possible outcomes for the investigative questions – generating all possible ways to get each outcome (a theoretical approach) or undertaking a probability experiment and recording the occurrences of each outcome – creating data visualisations for possible outcomes – describing what these visualisations show – finding probabilities as fractions – answering investigative questions – reflecting on anticipated outcomes		**posing investigative questions – anticipating what might happen – identifying possible outcomes for the investigative questions – generating all possible ways to get each outcome (a theoretical approach) or undertaking a probability experiment and recording the occurrences of each outcome – creating data visualisations for possible outcomes – describing what these visualisations show – finding probabilities as fractions – answering investigative questions – reflecting on anticipated outcomes comparing findings from probability experiments and associated theoretical probabilities, if the theoretical model exists**	

Critical Thinking in probability

agree or disagree with others' conclusions about chance-based investigations.	agree or disagree with others' conclusions about chance-based investigations, with justification.	interrogate statements that others make about one-stage, chance-based situations, referring to evidence.	Demonstrate matching claims to data visualisations, using evidence from the data. Support students to interpret data and construct a response (e.g., with sentence starters, writing frames) (year 6).
use the statistical processes to: – connect the chance of an outcome occurring with fractions, decimals, and percentages – investigate everyday chance-based situations using physical activities and technology.			